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AN ADDRESS ON THE DUCTLESS GLANDS.[1]

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One of the chief difficulties we meet with in our endeavours to correlate the functions of the ductless glands with clinical phenomena is that we have at present no exact knowledge of what the secretions of these glands actually are or what they do. Do they exert their influence through the agency of hormones, which regulate the secretions of other organs and tissues? Do they exert their influence through the sympathetic nervous system, or do they circulate in the blood or lymph stream and so come into direct contact with and exert some bio-chemical influence on the tissues of the body? These are questions to which we cannot at present give a definite answer. But while our knowledge on these points is limited, there are some facts which have been well established as a result of clinical observation and pathological research and it is on some of these that I propose to dwell more especially.

All our present knowledge tends to show that no one of these glands functions independently of the others. We know for certain of no clinical condition, except perhaps myxœdema, which can be ascribed as entirely due to a derangement of function of any one of these organs. If one is affected, then one or more of the others is affected in some way or other.

I propose, then, to consider the evidence we have of the influence of the internal secretions of these organs:—

(1) In connexion with the growth and development of the bony skeleton and the connective and cutaneous tissues.
(2) In connexion with the cardio-vascular system and the blood.
(3) In connexion with the muscular and nervous systems.

I.—Growth and Development.

First it is well known that sporadic cretinism, a defect in both physical and mental development, is associated with a congenital absence or loss of function of the thyroid gland in childhood. The proof that these two conditions are related as cause and effect lies in the fact that when thyroid extract is supplied to a cretin, growth is resumed and progresses at a normal rate, if the treatment is begun at a sufficiently early period of the child's life. It is interesting to note that the clinical features of the cretin only become manifest after weaning; this suggests that the secretion from the thyroid is excreted in the mother's milk.

In support of this theory Professor Spolverini records some observations he had made on infants which showed the signs of hyper- or hypo-thyroidism corresponding to the pathological condition of the thyroid gland of the mother or nurse. Two infants nursed successively by the same foster mother both showed symptoms of myxœdema, which rapidly disappeared under the influence of thyroid medication. In consequence of the phenomena exhibited by the second child, the nurse was examined and found to have a goître with some signs of hypo-thyroidism. In a third case the nurse of a healthy infant was changed and three weeks later the infant showed a hard œdema, with some swelling of the tongue. The nurse was examined and found to have a goître. In the fourth and fifth cases the children were nursed by their own mothers who both had thyroid tumours. After a few days in each case the infants showed symptoms of hypo-thyroidism. Rapid improvement followed when the mothers were put on thyroid medication. The last observation was of a woman with exophthalmic goître who had three children. One of the children she nursed herself showed signs of hyper-thyroidism, while the other two, who had been nursed by wet nurses, had no morbid symptoms. In this connexion it is also noteworthy that the thyroid gland is enlarged in pregnant women, the increase in size being probably a provision of nature to supply the growing fœtus with the necessary secretion for its normal growth and development.

The Bony Skeleton in Cretinism.

We may now consider in what way the body of a cretin differs in growth and development from that of a normal child. We note the stunted growth, the dry harsh scaly skin, the scanty hair, the entire absence of sweat, the imperfectly developed teeth and nails and the solid œdema of the skin and subcutaneous tissues, the lips thickened and everted, the tongue large and protruding between the lips. There are also large masses of fat in the supra-clavicular fossæ. The internal organs do not differ from those of a normal child. *Post mortem* examinations of cases of this nature have not been numerous. Judson Bury states that the most striking feature in the morbid anatomy of sporadic cretinism is the arrested growth in the length of the bones which develope in cartilage, while the membrane-formed bones exhibit either normal or excessive growth. With regard to the limb bones normally the greater part developes from vascular offshoots from the inner layer of the periosteum and is therefore practically just as much a membrane-formed bone as one of the cranial bones, such as the frontal. Now in cretinism it is the fibrous lamina projecting from the periosteum between the cartilaginous epiphysis and the shaft which hinders growth in length. There is no disease in the cartilage; its cells fail to proliferate and its matrix does not ossify in consequence, doubtless, of the vascular supply being cut off or diminished by the increase of connective tissue in the enclosing membrane. In cretinism, then, the arrested growth in length of a bone is really due to increased growth of that factor,

[1] Read at a Meeting of the New South Wales Branch of the British Medical Association on June 25, 1920.

viz., the vascular periosteum which leads to the development of bone. Hence the shafts of the long bones and many of the cranial bones become thick and dense. Dwarfing of the limbs is present in most cases of cretinism and the varying degrees of shortening are probably due to variation in the faulty development at the growing ends of the bones.

The Skin and Connective Tissue in Cretinism.

Besides the defect in development of the bones, we find other changes in the connective tissues. The changes in the skin, such as thickening, harshness, dryness due to defect of secretion of the sebaceous and sweat glands with defect in the growth of the hair, etc., are due partly to an infiltration of an amorphous material resembling mucin in the lymphatic spaces of the subcutaneous tissue and partly to a tissue resembling granulation tissue, containing an increased number of fibrils and nuclei, this cellular infiltrate being most marked around the hair follicles, sebaceous and sweat glands. The large irregular masses of fat in the supra-clavicular regions furnish further evidence of disturbance of the growth of the connective tissues. It is noteworthy that this condition of the skin and appendages, as well as that of the bony skeleton, may remain for years without undergoing retrogressive or progressive changes; in fact a certain amount of growth in the bony skeleton may take place, even in the absence of any specific medication, though sooner or later all growth in the bony skeleton ceases. Then on administration of thyroid gland substance in some form or other, we see the absorption of the myxomatous granulation tissue and a growth and development in the bones.

Some further interesting facts bearing on the connexion between the growth of the body and the thyroid gland are reported by Holmgren, of Stockholm. From an analysis of 127 cases which have come under his observation, he concludes that individuals who, while still growing, are affected with exophthalmic goître even in an incomplete form, are in 85% of cases of more than average height, whereas that does not prove to be the case in those who develope the disease after they have reached their full growth. On collating the statistics of the stature of children suffering from exophthalmic goître, he found his results corroborated. He considers that hyper-thyroidism induces an increase in stature and points out that puberty, during which the activity of the thyroid gland is, on good grounds, considered to be increased, is a time of life at which growth is fast. Girls who at the age of puberty display symptoms of hyper-thyroidism, form a special clinical type, the characteristics of which are physical and psychical precocity, conditions the opposite to those prevailing when the activity of the thyroid gland is diminished. He considers the conditions prevailing in hyper-thyroidism as constituting a support for the opinion that the increase in stature is physiologically regulated by the activity of the thyroid gland.

The result of study of ossification of the skeleton of the hand in 113 X-ray photographs shows the same thing. There exists a fixed relationship between the degree of ossification and height of the body, the shortest individual in each year's group being likewise the least advanced in respect of ossification, whereas the tallest is the most advanced. He regards it as established that infectious diseases may give rise to exophthalmic goître, perhaps through the agency of thyroiditis as a connecting link. The time-honoured observation that young people during or immediately after an infectious disease have been known not infrequently to grow very noticeably may be explained in this way; it is not improbable, according to Holmgren, that infectious diseases, even when no actual thyroiditis or Graves's disease ensues upon the slight irritation of the thyroid gland, which is frequently observed in these diseases, play a larger part in determining tallness of stature than we are aware of at present. He does not, however, presume to explain in any way the relation between this increased growth and the condition of over-activity of the thyroid gland which is assumed to be the main factor in Graves's disease.

How can we, then, explain the defect in body growth and the changes in the nutrition of the skin and subcutaneous tissues which are associated with the absence of the thyroid secretion?

Analogies are frequently fallacious, but we may get some assistance in solving this problem from a consideration of some other pathological conditions in which we find perversion in growth and development. The defect in growth of the limbs which have been affected in acute anterior poliomyelitis, and the similar condition of limbs found in cases of infantile hemiplegia (due to cortical degeneration either ante- or post-natal) are certainly due to the absence of some trophic influence normally exerted by the motor nerve cells of spinal cord or brain. The thin, glossy skin with absence of hair and defective functioning of the sebaceous and sweat glands met with in cases of nerve injury are also certainly due to the loss of some trophic influence usually exerted by the nerve cells or nerve fibres. In myxœdema and sporadic cretinism we find the cold dry skin, the defect in the respiratory exchange, the defect in the lymphatic circulation, the muscular weakness, as well as a depression of general nervous activity as revealed in the special nervous symptoms. In advanced cases of these diseases we find a degeneration of the nerve cells in the brain and spinal cord and we must assume that in less advanced cases the condition of the nerve cells is one of only lowered vitality, which can be recovered from under thyroid medication. We may get further light on this subject from a brief study of that form of idiocy known as mongolism. In this disease the infants are extremely weak and undersized and growth proceeds very slowly. Puberty is reached late; the pubic and axillary hair is usually very poorly developed. All varieties of malformation of the genital organs have been found in the male. In the female menstruation does not occur till late, is very irregular and soon ceases. They are always sterile. There is delayed ossification of the bones, but no other changes in them are found on histological examination. Although as a class they are undersized, the degree of dwarfism is not in any way characteristic, as it is in cretinism. The very close resemblance in physical characters presented

by these patients points to there being some common cause accountable for this condition; naturally attention has been directed specially to the ductless glands. Bournville has only discovered changes in the thyroid gland in two cases. In all others this gland was normal. Other observers have recorded either a hypoplasia of the gland, or a sclerosis with degeneration of the colloid material; but there is no evidence that any alteration in either structure or function of the thyroid gland can be held responsible for this form of idiocy. Most observers are agreed that the cause of the disease must be sought either in the cranium or in its contents. There is no evidence that the cause of mongolism is situated either in the structures at the base of the brain or in a premature ossification of the basal bones of the skull. But there is ample evidence of pathological changes in the cerebral cortex, not of an acute inflammatory nature, but such as strongly suggest the presence of a toxic degeneration or a chronic inflammation, such as might be brought about by some mild infection *in utero*. The maximum lesion appears to be situated in the fibre rather than in the cellular layers of the cortex. Here, then, we have a condition of defective body growth and development not altogether unlike cretinism in its physical appearance, which has been proved not to be due to any failure of function of the ductless glands, but which appears to be a secondary result of a type of brain disease suggesting a toxic degeneration. Is it not therefore probable that the physical and mental changes found in cretinism and myxœdema are due to trophic disturbance caused by some irritation of the central nervous system, such irritation being due either to a toxin unantagonized owing to the absence of the thyroid secretion, or to a toxin produced by the disturbed metabolism which results from the absence of the thyroid secretion?

Secondly, certain changes in the way of enlargement of the hands and feet, of the bones of the head and face, and of some bones of the trunk, as well as a marked change in the cartilaginous structures, such as the ear and nose and in the skin, which are met with in the disease clinically known as acromegaly, are very frequently, although not invariably, associated with some change in the pituitary gland. The opposite condition, that of defective development or infantilism, although of a type quite different from sporadic cretinism, has also been found to be concomitant with a morbid condition of the pituitary gland.

A consideration of the changes found in acromegaly show that these cannot be regarded as indicating a true hypertrophy, that is, a recrudescence in the adult of the normal process of bony growth and development as met with in the growing child. The condition is not one of uniform enlargement of the bones, but rather an exaggeration of bony prominences, crests, ridges and tuberosities due to periosteal growth, with formation of osteophytes, this periosteal growth being frequently associated with osteoporosis. Examination of the enlarged extremities *post mortem* and by the X-rays shows that the enlargements of these are not due chiefly to bony changes. The subcutaneous tissue is thickened also by connective tissue growing in and around fat lobules, with formation of fibrous tissue tumours on the surface of the skin. This connective tissue overgrowth may also occur in the muscles, but the hair follicles, sweat glands and blood vessels in the skin are not notably altered. In this connexion it is interesting to note that the morbid condition known as *adiposis dolorosa* has been found to be associated with changes in the pituitary gland, the secretion is diminished or absent logical condition, with an absence of the usual symptoms of acromegaly.

But we also find associated with a morbid condition of the pituitary gland a defective growth and development of the body generally, a condition of infantilism. Generally speaking, these cases of infantilism are associated with much adiposity, but in a case I recorded some years ago this infantilism was characterized by a certain amount of emaciation rather than an increase of fat. These two opposite conditions, acromegaly and infantilism, being both found to be associated with some disease of the pituitary gland, have been considered to indicate hyper-and hypo-function respectively. The assumption has been made that the pituitary gland must be an organ specially concerned with regulating the growth of the body.

I have pointed out that the bony changes in acromegaly cannot be regarded as a recrudescence of the normal process of growth. They are not strictly speaking of the nature of hypertrophy. True hypertrophy of any structure is a reaction of that structure to some external stimulus acting upon its cells, associated with an increased supply of nutriment and diminished resistance to growth. In acromegaly we find an irregular deposit of bony material which is not called forth by any external stimulus, but which may be compared with the irregular bony growths in rheumatoid arthritis, *osteitis deformans* and other similar conditions. These point rather to some change in the ordinary metabolic processes in the connective tissues, with retention of calcium and phosphorus and perhaps deficient oxidation in the tissues. The cases in which we find an excessive deposit of fat without the bony changes of acromegaly, seem to point to this conclusion.

Moreover, the morbid conditions of the pituitary gland which have been found in association with infantilism, differ in no obvious way from those found in connexion with the phenomena of acromegaly and it is difficult to understand how in one case the gland is stimulated to excessive secretion, while in another case, with a similar pathological condition of the pituitary gland in the way of tumour or other pathoaltogether. It is extremely difficult, if not impossible, to say from histological examination of a pituitary gland involved in tumour growth whether the gland has been stimulated to secrete more, or has been so far destroyed as to secrete less or none at all. Of course, in cases where the gland itself is not invaded by, but only compressed by, the growth, it is possible that either stimulation or inhibition of secretion may have existed, according to the amount of compression. Harvey Cushing's case and my own

case already referred to, both of which showed some symptoms which might be considered to indicate hyperfunction of the gland, did not present the signs of acromegaly, but the opposite.

The clinical results of removal of pituitary tumours in cases of acromegaly and infantilism are uncertain. Hochenegg successfully removed a whole pituitary gland from a patient with acromegaly, with the result that there was a measurable diminution in the bony overgrowth. Cushing records a similar case in which the gland presented the appearances of a simple hypertrophy. Stumme has also reported a case of the removal of a malignant adenoma of the pituitary with rapid diminution in the size of the hands and feet, which had been specially enlarged. Von Eiselsberg has operated in cases of infantilism with excessive deposition of fat with the result that there was pronounced lessening of fat and rapid appearance of sexual adolescence. Church has reported operations on five cases of pituitary tumour with the signs of acromegaly. In one case, a boy of 14 years of age, although after operation he grew reasonably tall, remained infantile in conformation; the genital organs never developed and there was no growth of hair on the face or on the pubes, though he survived the operation for some years. In the other cases practically no improvement ensued. So we must admit that at present no explanation of the relation between the disturbances in connective tissue metabolism and the functional activity of the pituitary gland is forthcoming.

Development of Sexual Activity.

Thirdly we may briefly consider the relation between the growth of the bones and the functional activity of the sexual organs. This has been worked out by Shattock and Seligmann in a paper communicated to the Royal Society of Medicine of London in 1910. They have investigated the modification in the growth of bone in castrated animals.

In regard to the long bones, one of the well recognized results of castration carried out in young animals is an increase in length. Five hares were used for experiment. Two females were spayed and one male castrated and all were killed nine months later. The length of the femora in each of the spayed animals was slightly greater than those of the second one unspayed; one of the spayed was larger than the largest of the two intact. Moreover, the length of the right femur and right humerus in the castrated male markedly exceeded the length of the corresponding bones in the normal male, in two normal females and in two spayed females. The measurements of the pelves in the two intact females showed that both the antero-posterior and the transverse diameters of the pelvic inlet exceeded those in the two spayed. In the castrated male the extreme distance between the iliac crests, the extreme height from the ischial tuberosity to the highest part of the iliac crest and the antero-posterior diameter of the inlet all exceeded the corresponding measurements in the normal male. Similar experiments on oxen and on pigs showed the same results.

These investigators remark that there is nothing which makes it *a priori* unreasonable that the growth of the pelvis accompanying puberty in the human female and corresponding in time with the maturation of the ovary, may depend upon some function of the latter, possibly the elaboration of an internal secretion of the same class as that which there is reason to be believe is produced in the case of the testis. It is not till the advent of puberty that marked disparity of pelvic growth in the sexes is brought about and the influence of the ovary may be the effective cause of this. As regards the influence of the growth of the bony pelvis of defective functioning of the ovary in women, there are no conclusive observations, but Dr. Herbert Spencer has noted that a large percentage of cases of contracted pelves are associated with disease or incomplete development of both ovaries.

Fourthly, the thymus gland appears to be associated in some way with body growth. It is, of course, a significant fact that the thymus gland is most active during the second year of life and then gradually atrophies towards puberty, that is, it is most active in its functions during the period of most active growth and its activity wanes with the attainment of the full stature of the body. But beyond this association we cannot say that anything definite is known of its functions. Developmentally it is closely related with the thyroid gland; it is constantly found enlarged in cases of exophthalmic goître. It has been stated that when young animals are deprived of their thymus glands, there is a diminished growth of bone, and some have reported the appearance of rickets in animals so treated.

It has long been known that in marasmus in children the thymus has been found atrophied, but whether this is a cause of the marasmus or whether the thymus shares in the general atrophy of the tissues in these children, is not quite clear. Chemically the gland, on account of its large content of nucleated cells, contains a large amount of nucleoprotein and consequently a large amount of organic phosphorus. Iodine has also been discovered in it, so that *a priori* one would expect good results from the use of thymus gland extract in cases of myxœdema and cretinism. This has been found to be true clinically; in some cases it appears to have produced beneficial results when thyroid gland extract has failed and unfavourable effects in cases of goître.

There is therefore some ground for believing that the thymus also favours the development of the bony skeleton, possibly by the chemical contents of its secretion and its influence on calcium metabolism.

II.—The Circulation and the Blood.

We may next consider the influence of the secretions of the ductless glands on the circulation and on the blood.

In exophthalmic goître we find that the heart's action is almost invariably rapid, ranging from 110 to 140 or even 160 per minute. Cases have been recorded in which this tachycardia has been followed by bradycardia, this, no doubt, being due to a subsequent atrophy of the thyroid gland and diminution of the thyroid secretion. The rapidity of the heart

in apt to be increased by very slight exciting causes. Moreover, not only is there tachycardia, but also a painful consciousness of the pulsation in the chest and all over the body, due to a dilatation of the arterioles and capillaries. This increased rapidity is often accompanied by dilatation and hypertrophy and not infrequently arrhythmia in the later stages. Any change in the character of the heart sounds is to be explained by the condition of the myocardium.

In contrast to this tachycardia in exophthalmic goître, we find in myxœdema and cretinism in the early stages practically no symptoms of cardio-vascular disease, but in advanced cases symptoms of myocardial disease may be obvious, such as dyspnœa on exertion with palpitation and severe attacks of syncope, which may prove fatal. The cardiac impulse is feeble, the heart sounds distant, the pulse-rate generally slower than usual but regular. In cases which have proved fatal from cardiac syncope, fatty and fibroid changes in the myocardium have been detected. Fortunately now-a-days we do not often see these fatal cases, as myxœdema is now so generally recognized in the early stages and appropriate treatment is thus secured.

Although these two conditions are usually contrasted as being due respectively to hyper- and hypothyroidism, the effects produced on the circulation are not due to the same mechanism. In the case of exophthalmic goître the cardio-vascular symptoms are similar to those which can be produced experimentally by stimulation of the cervical sympathetic; the tachycardia and forcible action of the heart in this disease are probably due to the action of the thyroid secretion on the sympathetic, although it has been shown that thyroid gland extract has a direct action on the cardiac muscle, increasing the size and force of the contractions as manifested by increased pulse pressure and cardiac hypertrophy. Clinically, too, we recognize the effect upon the circulation when thyroid extract is administered for the treatment of myxœdema.

In myxœdema, on the other hand, there is no obvious disturbance in the cardiac nerves, but the effect upon the circulation of the deficient secretion is probably due to the faulty tissue metabolism which affects the cardiac muscle, as it does other tissues, leading in advanced cases to fatty and fibroid changes. These effects are manifested by the signs already mentioned.

In Addison's disease, in which there is no doubt a defective functioning of the suprarenal glands, we find marked loss of muscle tone, not only in the voluntary muscles, but also in the cardiac muscle. The systole is much weakened, as shown by the very feeble impulse and the distant heart sounds, the soft, weak pulse, often scarcely perceptible at the wrist, and the frequent tendency to syncope, which may prove fatal at any moment. No explanation of this condition of the heart is forthcoming in the absence of any exact knowledge of the pathology of Addison's disease. Suffice it to say that the absence or diminution of adrenalin in the circulation *per se* is hardly sufficient to explain all the phenomena of this disease. It is more probable that, as in the case of other ductless glands, defective functioning leads to a disturbance in tissue metabolism with the formation of tissue poisons, which, in their turn, affect the heart as well as the other systems.

As regards the influence of the internal secretions on blood pressure, we know that Oliver and Schafer in 1895 found that an extract made from the pituitary gland—that is, from both the anterior and posterior lobes together—when injected into animals, caused a rise in blood pressure, but considered that this action was not so marked as that produced by suprarenal extract. It was subsequently shown that it was the extract of the posterior or infundibular portion of the gland which had this effect; the extract of the anterior portion was inert. Blair Bell showed that the extract of the infundibular portion has a more powerful effect in raising the blood pressure when the animal is in a condition of shock than in other circumstances. This extract also keeps the blood pressure raised for several hours in contrast with the action of adrenalin, which is only temporary. But in spite of the numerous experimental and clinical observations which prove conclusively that from the pituitary gland an extract can be obtained which, when injected into animals, has a marked effect on the blood pressure and the circulation, the clinical records of cases of pituitary disease are singularly wanting in reference to the condition of blood pressure. But this absence of specific mention of high arterial pressure in cases of pituitary disease, such as acromegaly, is at least suggestive that such a condition is not at any rate a prominent clinical feature. But if acromegaly be a clinical manifestation of hyperpituitarism, it is reasonable to suppose that an increased blood pressure would be found in cases of this disease. Its absence, therefore, suggests that, after all, acromegaly is not to be regarded as purely and simply a condition of hyperpituitarism. It is true that in regard to tumours of the pituitary the pathological records are defective in regard to accurate accounts of the amount of interference with the gland itself, but it is rather striking that in one case recorded by Harvey Cushing in which a teratoma compressed but did not invade the pituitary, there were symptoms which at first led to a diagnosis of chronic nephritis; and in a case of infantilism associated with an endothelioma of the pituitary which I reported some years ago, there was in the early stages an increased pulse tension with diuresis, which at first led to the diagnosis of chronic renal disease, and which might presumably be interpreted as due to irritation of the pituitary with increased pituitary secretion exerting its effects on the blood pressure and circulation. But in a case recently reported by Hecht of a young woman who presented undoubted evidence of disease of the pituitary, daily observations of the blood pressure for several weeks before and during the administration of pituitary gland extract gave readings of blood pressure varying from 85 to 95 mm..

These facts lead one to suggest the question whether the pituitary gland normally forms an internal secretion which is habitually being poured into the circulation, the effect of which is to maintain or assist

in maintaining the blood pressure at a normal height. Or can Hecht's case be interpreted as a clinical manifestation of the observations made by Crowe in corroboration of the findings of others, that successive injections of posterior lobe extract not only soon fail to cause a rise of blood pressure, but may produce an actual fall which may ultimately, after repeated injection, produce a fatal result?

As regards the suprarenal glands, there is no doubt that they furnish a secretion which has a powerful effect in raising the blood pressure and there is some evidence that one of their functions is to keep normal the tone of the systemic arteries. Goldzieher reports a research which shows that the normal average adrenalin content in human suprarenals is about 4 mgr.. In the suprarenals obtained from patients with arterio-sclerosis the average amount of adrenalin was 5.8 mgr. and in cases of chronic nephritis 5.79 mgr.. On the other hand, in cases of septic infection with low blood pressure the average was only 1.5 mgr.. The changes found in these glands in cases of pneumonia, septicæmia, meningitis and other septic processes were swelling of the parenchyma, cystic degeneration or hæmorrhagic infarcts. These were all of a serious nature and explain the disturbance or total arrest of function of these organs in infectious diseases. The collapse in septic affections is probable due chiefly to lowered blood pressure resulting from the acute suprarenal insufficiency. Several researches have been made with a view to ascertaining the condition of the suprarenal glands associated with variations in the blood pressure as clinically recorded. Philpot has examined 27 cases, 19 of which were of chronic interstitial nephritis, 3 of hypertrophy of the left ventricle without nephritis and 5 cases of low blood pressure. In all the cases with high tension the suprarenals were heavier and felt firmer than those with low tension. The cortex presented no distinctive characters in the two sets of cases; in no case was there noted any relative increase of the cortex, such as has been described by other writers. The size of the medulla varied. In the high tension series the medulla was enlarged in nearly every instance, in some being five times the width of the cortex. In only three was the medulla not increased above the normal size. In the low tension series the medulla was extremely small, occupying a mere strip between the two layers of the cortex. The chromaffin substance was present in both series, but in the low tension series only traces were seen. This diminution in chromaffin substance in wasting diseases agrees with Mott's results. He examined the suprarenals in 75 cases of death from various diseases at Claybury Asylum and found that in cases of wasting disease no adrenalin could be obtained from these glands. In Philpot's high tension series the chromaffin substance was increased in every case except six and in these there was a moderate amount present. All the evidence obtained from a study of these cases points to the medulla being the part of the suprarenal gland which is the seat of change in cases of high arterial tension; there is no evidence of the cortex being affected either in the direction of increase of size or of histological change. These investigations further show that besides the usual factors associated with or causing high blood pressure, a condition of increased activity of the suprarenal glands or hyper-adrenalism is very often, if not invariably, present.

The Composition of the Blood.

The influence of the thyroid secretion on the blood may be regarded from two points of view. First, as to the function of the gland itself in the formation or destruction of blood corpuscles in its own tissues. The late Sir Victor Horsley in the Brown Lecture in 1885 stated that in his opinion one of the functions of the thyroid was hæmopoietic. The presence in the thyroid of tissue like that contained in the spleen and the occurrence of anæmia after removal of the thyroid was, he considered, sufficient proof of its hæmopoietic function. Examination of the blood from the superior thyroid artery and the corresponding vein showed that the vein contained 7% more red corpuscles than the artery. This apparently is a strong argument in favour of Horsley's view; but it may be explained otherwise as an indication of functional activity as a secretory organ, an increased metabolism and formation of the colloid material.

Secondly, from the point of view of the influence of the thyroid secretion upon the blood itself, regarded as one of the tissues of the body. This can be studied in the effects on the blood itself after removal of the thyroid gland in animals and clinical observations in man. In myxœdema there is more or less anæmia in about half the cases. The red corpuscles are reduced to about 3,000,000 and sometimes to 2,000,000 or less per cubic millimetre. The hæmoglobin is reduced to about the same proportion as the red cells. Nucleated red cells are not uncommon with a low red cell count. The leucocytes show no noteworthy changes in the formula, except perhaps an increased number of large lymphocytes. Richardson states that normally the leucocytes are present in a greater proportion in the veins than in the arteries of the gland and this proportion is greater than that found in the veins of the limbs. After thyroidectomy there is an increased venosity of the blood, with a great diminution in the amount of oxygen. The decrease in the amount of oxygen in the arterial blood may be so great as to be less than the oxygen in normal venous blood, a condition which would account for many of the symptoms of myxœdema. Kocher records the result of full blood examinations in 106 cases of exophthalmic goître. The red cells were frequently about normal in number. The leucocytes were almost invariably reduced, in many cases to about 5,000, the lowest count being 3.500. The reduction was almost entirely in the polymorpho-nuclear cells, which in one case formed 35%, instead of 75% of the total number of leucocytes. The lymphocytes were proportionally and sometimes actually increased, in some cases forming 57% of the total. Eosinophile cells were frequently increased sometimes to 15% of the total, but this was not a constant finding. A marked lymphocytosis is a bad sign; lymphocytosis without a general leucopenia is prognostically not such a bad sign as when it occurs along with leucopenia. Operation on the gland had a striking immediate effect on the blood count. In

one case on the day following operation the leucocytes rose from below normal to 12,800, the neutrophile cells rose from 42% to 89.2%, while the lymphocytes fell from 48% to 2.7%. Some months after successful operation blood examination showed, as compared with the count before operation, an increase in the total number of leucocytes and a return to nearly the normal proportion of neutrophile cells to lymphocytes. The coagulation time of the blood is lengthened and the viscosity of the blood is increased in this disease. Hale White has pointed out that during the administration of thyroid gland extract, while there is little change in the number of red and white cells, the relative proportion of the mononuclear leucocytes to the polymorpho-nuclear leucocytes is altered, there being an increase of the lymphocytes at the expense of the polymorpho-nuclear cells. Increase of the lymphocytes has been observed to begin about the third day and to last for several days after the administration has ceased. These observations prompted the suggestion that the thyroid secretion acts as a direct stimulant to the lymphatic or adenoid tissue.

Although Addison regarded the disease which has been named after him, as a condition of anæmia, yet in most cases of this nature marked anæmia is rare, or if present, can be explained by complications, such as tuberculosis, cancer or severe gastro-intestinal disturbance. In one case of my own the red cell count was 5,300,000, with 13,000 leucocytes and no abnormality in the leucocyte formula. Dock gives a similar result from an examination of the blood in four fatal cases. But while there is no evidence that the suprarenal glands exert any specific effect, either hæmolytic or hæmopoietic, yet we see in that clinical condition which is usually regarded as being due to a defect in the function of these organs, some degree of anæmia in the later stages. Hence we are lead to assume either as Osborne suggests, that a proper amount of suprarenal secretion is necessary for the normal development and health of the red blood cells, or that the change in the blood is a secondary result of other bodily changes set up as a result of a deficiency of this secretion. But that the chemical composition of the blood is in some way maintained by the functioning of these glands appears evident from the fact that extirpation of the suprarenal glands leads to the development of toxic characters in the blood, for it has been found that this blood is toxic, especially for other animals which have themselves been deprived of their suprarenals. Da Costa states that in advanced cases of Addison's disease there may be a considerable reduction in the red cells and in the amount of hæmoglobin, also numerous poikilocytes and microcytes and a small number of normoblasts. The number of leucocytes is usually normal or below normal. Relative lymphocytosis and sometimes a moderate increase in the number of the eosinophile cells, together with a few myelocytes and basophile cells, are the most common features. There is no conclusive clinical evidence that the other ductless glands have any influence on the composition of the blood.

III.—The Influence of the Ductless Glands on Muscular Contraction.

A review of the conditions of muscular contraction, both striated and plain, in association with some recognized alteration in the functioning of the ductless glands, reveals the following phenomena:—

(1) The influence of the parathyroid glands in the production of tetany, a condition which is produced by the absence or defective function of these organs.

(2) The condition of marked muscular asthenia met with as one of the characteristic symptoms of Addison's disease and the powerful effect on the cardiac muscle and the plain muscular fibres of the arterial walls produced by subcutaneous injection of suprarenal extract.

(3) The phenomena of muscular contraction in myxœdema and cretinism, the defective muscular metabolism in these diseases and the muscular tremor with increased excitability of the reflex actions in hyperthyroidism, as well as the muscular weakness and occasional wasting in exophthalmic goître.

(4) In affections of the pituitary gland we find loss of the muscle tone and muscular weakness in acromegaly. Conversely, we have the well-known effect of injection of the extract of the posterior lobe of the pituitary gland in causing a contraction of the plain muscular tissue of the uterus, bladder and intestine, as well as the tonic effect on the cardiac muscle, producing a slowing of the heart with an increased force in its contraction.

The most striking features of tetany are the tonic intermittent spasm of the voluntary muscles, the production of these spasms by pressure upon the principal nerve trunks of the affected limbs, increased electric excitability of the motor nerves (the irritability to galvanism being more constant than the irritability to the faradic current), increased sensibility of the sensory nerves to galvanic stimulation, increased mechanical excitability to mechanical stimulation and increased response of the sensory nerves to the same kind of stimulus.

In the condition of tetany which developes after the removal of the parathyroids, there is increased elimination of calcium salts and it has been found that the intravenous injection of a 5% solution of calcium acetate or lactate causes almost immediate cessation of the tremors, tachycardia, rigidity and other symptoms resulting from parathyroidectomy. These findings harmonize with Escherich's observations of the pathological changes in the parathyroid glands of children who had previously exhibited a tendency to tetany. Thompson and Leighton have shown that the symptoms resulting from the gradual destruction of the parathyroid glands differ from those obtained from the excision of the glands. After ligation of the parathyroid vessels there is slow progressive loss of weight and strength with stupor and finally death from exhaustion without the symptoms of tetany developing. They conclude that sudden loss of the parathyroid glands results in an acute convulsive condition, that is, tetany, but in slow destruction there are only chronic nutritional changes which ultimately end in death.

Further experiments in the production of tetany have given additional confirmation to the belief that the removal of the parathyroid glands is particularly responsible for the symptoms of tetany. These symptoms may be relieved by the hypodermic injection of parathyroid extract provided that it is freshly prepared and not over-heated or kept long at a low temperature. The relief of symptoms by the injection of calcium salts cannot be taken as proof that the symptoms are due primarily to a deficiency of calcium in the blood or tissues, for the symptoms may also be relieved by injection of strontium salts. The symptoms caused by the intravenous administration of ammonia or xanthin are quite similar to those of tetany and may be relieved by an injection of calcium or strontium salts. The total evidence leads to the conclusion that the symptoms are due to some poison which is produced as a consequence of a disturbed metabolism incident to the removal of the parathyroids.

Attempts have been made to associate *paralysis agitans* with a disturbance of the functions of the parathyroids. It has been suggested that *paralysis agitans* is caused by an atrophy of the parathyroids, just as myxœdema is due to a wasting of the thyroid. Some support to this theory is supposed to be given by the observation of a case of myxœdema with *paralysis agitans*, the combined diseases being thought to be due to a chronic hypo-function of the thyroid and parathyroid glands. Similar cases have been observed by others, and Moebius has noted a case of exophthalmic goître combined with *paralysis agitans*. But the therapeutic results obtained by treating cases of *paralysis agitans* with parathyroid extract have not tended to confirm the belief in the pathology of *paralysis agitans* being associated with a diseased condition of the parathyroid glands.

Asthenia is perhaps the most frequent and important of the constitutional symptoms of Addison's disease. At first the patient is easily tired, never feels rested, even after a long night's sleep, and gradually becomes more and more indisposed for any exertion, whether of body or of mind. The muscular feebleness is not accompanied by any corresponding emaciation and there are no signs of peripheral neuritis. The total loss of sustained muscular effort distinguishes Addison's disease from other conditions of great debility. This condition of muscular languor has been compared to that produced by the action on muscles of such a poison as curare. The absence of any specific histological alteration in the muscular nerves or nerve endings, or of any constant changes in the motor cortex suggests that the muscular asthenia must be of peripheral origin and must be considered as primarily due to defective circulation in the muscles, or part of the general feebleness of the circulation and the poor supply of nutriment to the muscles with a co-existent defective removal of effete products of muscular metabolism. This pathological condition must be due to a failure of the internal secretion of the suprarenal and the consequent loss of the tonic effect upon the coats of the blood vessels or to the specific effect of some poison which is circulating in the system unantagonized by the suprarenal secretion, or not eliminated by the hypothetical excretory action of the suprarenal cortex.

The sluggishness of the muscular movements in myxœdema and cretinism and the opposite condition in exophthalmic goître are probably to be explained, in part at any rate, by the defective muscular metabolism in the one case and the increased circulation and increased muscle tone in the latter. But experiments of the late Sir Victor Horsley seemed to show that the sluggishness of the movements in myxœdema are due to the affection of the nerve centres and specially those of the motor cortex. The lengthening of the latent period in contraction of muscle in this disease, which was observed on experimental stimulation, is a special feature of the curve obtained from the cortex, that from the spinal cord and muscle being nearly normal in this respect. The loss of energy in this disease is therefore chiefly due to an affection of the cortex centres. The gradual loss of nutrition resulting from the removal of the thyroid shows itself first by diminishing the power of the cortical centres in maintaining a tetanic character of the movements they generate and secondly by the gradual abolition of the tendency to epileptic seizures. The final stage is apparently one of complete loss of function of the central nervous system, so far as movement is concerned.

If one of the functions of the pituitary gland is to maintain the tone of the plain muscular fibres in the walls of the blood vessels, the failure of this function may impair the muscle nutrition and so lead to the condition of muscular flabbiness and weakness met with in cases of pituitary disease. But more than this cannot be said as to any direct effect of the pituitary secretion on muscular contraction in the normal condition of the body.

IV.—The Nervous System.

There is not much clinical evidence that the ductless glands exert any direct specific effect upon the central nervous system, except in so far as they exert an influence on tissue metabolism throughout the body; any symptoms of derangement of the central nervous system presented by a patient who is suffering from some disorder of the ductless glands, must be attributed to a similar disturbance of the biochemical activity of the central nervous system due to a perversion of the hormone action, or else to the influence of a tissue toxin formed in some other organ by similar action and carried to the central nervous system by the blood vessels or lymphatics.

In myxœdema we find a condition of mental hebetude, defctive memory, occasionally irritable temper, with visual and auditory hallucinations and disturbance of the special senses. If untreated, this condition may develope into mania, melancholia or dementia. If treatment be undertaken in an early stage, all these mental symptoms rapidly disappear. This tends to show that the changes in the central nervous system are more of the nature of a functional degradation than one of structural degeneration.

In exophthalmic goître the intellectual powers are

unimpaired, but the patient is irritable, restless, easily excited and upset by slight sudden noises, sometimes depressed, sometimes unduly elated. Sleep is disturbed and unrefreshing. In some cases the patient suffers from delusions and hallucinations, with ideas of persecution, a condition which may develope into insanity. In this disease, too, we sometimes get definite evidence of peripheral neuritis, such as cramps in the muscles of the limbs, with weakness of muscles, tenderness of the nerves, tremors and vasomotor symptoms. But these phenomena can hardly be attributed primarily and entirely to an excess of the thyroid secretion in the circulation. For when thyroid extract is used therapeutically in the treatment of mental disorders, even in such large doses as 3.6 to 4.8 grammes a day, no such marked nervous and mental symptoms are produced as are met with in this disease and one would suppose that this large amount of thyroid extract much exceeded the amount which would be secreted even by an enlarged thyroid in exophthalmic goître.

While the evidence, then, of any direct relationship of the ductless glands with the central nervous system is slight, a close functional connexion between the ductless glands and the sympathetic nervous system is practically certain. The injection of adrenalin arouses every activity that can be normally excited by stimulation of the sympathetic nervous system. The chief results of stimulation of the sympathetic are: vaso-constriction of blood vessels, dilatation of the pupils, increased secretion of saliva and sweat, acceleration of the heart, vaso-constriction of the intestines and kidney, vaso-dilatation of the same, inhibition of the intestines, contraction of the ileo-colic sphincter and inhibition of the bladder. This suggests that in the normal condition of the body the circulation of adrenalin as supplied by the suprarenal glands exerts its influence over the body through the medium of the sympathetic nerves. Further we know that emotional disturbances, such as sudden fright or fear or anger, are accompanied by definite physical changes in the body which again exactly resemble the signs just enumerated as a result of stimulation of the sympathetic. So it appears that there is some connexion between the ductless glands, the sympathetic nervous system and the emotions and their physical accompaniments. In support of this we may note the appearance of a patient who is suffering from exophthalmic goître. The prominent eyes, the rapid breathing, the throbbing blood vessels, the rapid heart, the tremor and the muscular quivering all suggest the picture of an animal which has been hunted and brought to bay. Now these physical changes in an animal are clearly the result of intense emotional excitement and are necessary to enable the animal to escape rapidly from danger. The flow of blood through the muscles is accelerated; there is an increase in the amount of nutriment corresponding to that amount of muscular activity which is essential for the safety of the animal. This is effected, it is presumed, by the stimulation of the suprarenal glands to secrete more adrenalin, the latter then stimulating the sympathetic and so leading to increased tissue metabolism.

Short of the complete clinical picture of exophthalmic goître we find a group of symptoms which suggests a similar pathology. In many of the returned soldiers who have been blown up in explosions and who are suffering from what is commonly called "shell shock," we find on examination some enlargement of the lateral lobes of the thyroid gland, tachycardia, with occasional arrythmia, the rapidity of the heart being increased very easily by slight exertion or any little excitement, profuse sweating, especially of the palms of the hands, tremulousness, muscular weakness, restlessness, loss of appetite and frequent disorder of the stomach and intestines. These are all the signs of hyperthyroidism. In many of these cases probably other factors are at work in the production of these symptoms, but there is no doubt that the primary cause of this disturbance is the emotional excitement incident to the conditions of life in the trenches, the emotional conflict determining an undue stimulation of the ductless glands, more especially the thyroid and the suprarenals.

It is extremely probable that the same cause is at work in the production of many of the cases of so-called neurasthenia which we see in civil life, although it is not always easy to locate the exact gland or glands which may be the cause of the nervous disorder.

In conclusion, it is obvious, as I stated at the beginning of this paper, that our knowledge of this subject is extremely limited, in spite of all the work that has been done on it. We have learnt all that it is possible to learn under the present circumstances of the results to be obtained by excision, partial destruction or stimulation of the ductless glands; further investigation along these lines would not seem to be very profitable. Experimental and therapeutic results obtained by injection of extracts of these glands into animals and human beings do not afford us any certain knowledge of the functions of these organs in normal conditions. It appears to me that the only hope we have of gaining further knowledge is by careful clinical observations, supported, when possible, by clinical, pathological and *post mortem* records and the publication of all or such of these as may tend to throw any light on the subject for the benefit of other workers in the same field of inquiry.

Reports of Cases.

A NON-FATAL SHARK BITE

By **Harold Miller, M.B., B.S.,**
Townsville, Queensland.

A.B., aged 20 years, and six other men set out on March 8, 1920, in a yacht in Cleveland Bay, to take stores from Townsville to the Bay Rock Lighthouse. They made a fishing trip at the same time. When about half way between Bay Rock and Magnetic Island, the boat overturned and sank. The occupants decided to swim to Bay Rock, a distance of about three miles. A.B. had been knocked on the head with a mast and "went out to it." After coming to, he started to swim. He had been swimming for about twenty minutes, when he was attacked and bitten by a shark. The shark evidently could not get sufficient grip in the region where it set its teeth. It then tossed A.B. out of the water a distance of several feet. The shark did not trouble him again. He was then able to continue his swim and eventually reached Bay Rock. Three

To Illustrate Dr. Harold Miller's Article.

To Illustrate Dr. Charles Wassell's Article.

of the seven men were lost, but the others reached the rock without being molested.

Cleveland Bay is infested with sharks.

The wounds were not deep. The majority only penetrated the skin and subcutaneous tissue. Those on the buttock extended more deeply and the muscles were exposed. Some of the wounds on the posterior aspect of the thorax also penetrated as far as the ribs. The photographs were taken eleven days after the occurrence. By this time the wounds had become partially healed.

A RARE RESULT OF AN ENCOUNTER WITH A SHARK.

By **Charles Wassell, D.S.O., M.B., Ch.M.,**
Hunter's Hill, New South Wales.

The following particulars have been supplied to me by Mrs. Wassell, the widow of my brother.

Just before or just after the outbreak of war a Binghi (native of Thursday Island), named "Teapot" and sometimes "Treacle," was engaged as a naked diver to the pearling industry. He was attacked by a shark under water. The fish went for his head, which it took into its mouth. The man was unarmed, but by sheer struggling and force, he managed to liberate himself. His physique is splendid. He was treated for about a month in the hospital at Thursday Island by my brother, the late Dr. J. L. Wassell. The photographs were taken when the patient was convalescent. They show conclusively that his head was inside the shark's mouth.

Reviews.

OPERATIONS ON THE EYE.

A conscientious perusal of a text-book of ophthalmic operations produces in the reader a condition of mental fatigue mingled with a virtuous thrill of having, in a humble measure, acquired merit. These sentiments must not be construed in any way as a reflection upon Grimsdale and Brewerton's excellent work.[1] They are purely *à propos* of the inherent inadequacy of words to express very often the simplest ideas, in fact so frequently are things much easier done than said. Though probably used more as a book of reference, there is much to be said in favour of a systematic reading from cover to cover. By doing so the student discovers that he is not dealing with a disjointed dictionary of operations, but with a well thought out, wisely critical and most helpful treatise on operative treatment generally.

The authors are generously appreciative of other men's work, but in our opinion, are too sparing of the personal note. An interval of thirteen years has elapsed since the appearance of the first edition. In the present volume the descriptions of various procedures have been excised and we are inclined to think that the pruning might with advantage have been carried further.

A new chapter dealing with the conjunctiva has been added. It contains Teale's operation for symblepharon, as in the first edition, but gives May the credit for the method formerly attributed to Hansen Grut. It describes also the making of conjunctival flaps for corneal defects, McReynold's excellent operation for pterygium and Heisrath's tarsectomy. The account of the last named is poor. The operation is important and worthy of a fuller and more detailed description.

The first chapter deals with operations for squint and the various methods of tenotomy, advancement, tendon lengthening and reefing are described in more or less detail. In the multiplicity of procedures the student is apt to get bewildered and is left to make his choice with the minimum of guidance. In like manner the long list of operations for ptosis is treated with historical impartiality. The two chapters describing operations on the lids are left very much as in the preceding edition; they contain accounts of all the classical methods well known to ophthalmologists. The authors acknowledge, however, that this branch of plastic surgery has undergone great development during the war and that experience has proved the more extended value of Thiersch grafts. Whether the older procedures will be superseded by the newer still remains to be seen, but for the ordinary requirements of civil life the authors evidently believe that they will hold their own. Chapter VI., on enucleation and its substitutes, is considerably modified in the light of recent experience. Emphasis appears to fall mainly on three points: the necessity for some substitute for simple enucleation to insure cosmetic success; the error of exaggerating the probability of sympathetic mischief; and the superiority of the Esser epithelial inlay for improving defective sockets. This is a particularly good chapter and contains excellent accounts of all the best operations.

The subject of cataract extraction is dealt with comprehensively and well. The really important methods are described in full with a wealth of valuable hints and suggestion for the student. The authors' operation of choice is the combined extraction with a late peripheral iridectomy.

A newly written chapter is devoted to the operative treatment of glaucoma. The various measures devised to combat this disease are described from the classical iridectomy of Graefe to the later methods of Lagrange and Elliot. Accounts of some of the intervening procedures are somewhat wanting in lucidity, but as they are now seldom or never practised, the defect is unimportant. Long as the list is, there is at least one omission, namely, a method of draining the anterior chamber by means of a silk thread, described by Mayou and Zorab independently in 1912 and called by the latter aqueoplasty. It is still on trial.

It remains only for the reviewer to express his admiration for the industry and ability shown by the authors in compiling this monumental work.

[1] A Text-Book of Ophthalmic Operations, by Harold Grimsdale, M.B., F.R.C.S., and Elmore Brewerton, F.R.C.S.; Second Edition; 1920. London: Baillière, Tindall & Cox; Demy 8vo., pp. 438, illustrated with 129 figures. Price, 18s. net.

Congress Notes.

The date of the Australasian Medical Congress is August 23-28, 1920.

The official address of the Congress is: The Honorary Secretary, 11th Session, Australasian Medical Congress, B.M.A. Building, Adelaide Street, Brisbane.

The following are the Local Secretaries in the several States:—

New South Wales: Dr. F. Brown Craig, Macquarie Street, Sydney.
Victoria: Dr. A. Leo Kenny, Collins Street, Melbourne.
South Australia: Dr. F. S. Hone, North Terrace, Adelaide.
Western Australia: Dr. W. Trethowan, 267 St. George's Terrace, Perth.
Tasmania: Dr. E. Brettingham Moore, Macquarie Street, Hobart.
New Zealand: Dr. G. Bruton Sweet, Remuera Road, Auckland.
Queensland: The Honorary General Secretary and the Coadjutor Secretary, c/o. Queensland Branch, British Medical Association, Adelaide Street, Brisbane.

The following is a list of the Honorary Secretaries of the Sections:—

(i.) *Medicine*: Dr. Andrew Stewart, Wickham Terrace, Brisbane.
(ii.) *Surgery*: Dr. Donald A. Cameron, Wickham Terrace, Brisbane.
(iii.) *Obstetrics and Gynæcology*: Dr. Lillian V. Cooper, George Street, Brisbane.
(iv.) *Pathology and Bacteriology*: (In place of Dr. A. W. Dean) D. J. V. Duhig, Wickham Terrace, Brisbane, and Dr. A. Breinl, Institute of Tropical Medicine, Townsville.
(v.) *Public Health*: Dr. J. S. C. Elkington, Federal Quarantine Department, Brisbane.
(vi.) *Ophthalmology*: Dr. J. Lockhart Gibson, Wickham Terrace, Brisbane.
(vii.) *Otology, Rhinology and Laryngology*: Dr. W. N. Robertson, Wickham Terrace, Brisbane.
(viii.) *Diseases of Children*: Dr. A. Jefferis Turner, Wickham Terrace, Brisbane.
(ix.) *Naval and Military Medicine and Surgery*: Dr. G. P. Dixon, C.B.E., Wickham Terrace, Brisbane.

(x.) *Neurology and Psychological Medicine*: Dr. T. H. R. Mathewson, Brunswick Street, New Farm, Brisbane, and Dr. J. R. Nicoll, Hospital for Insane, Toowoomba.

(xi.) *Dermatology and Radiology*: Dr. V. McDowall, Preston House, Queen Street, Brisbane.

The Section of Naval and Military Medicine and Surgery.

The Honorary Secretary of the Section of Naval and Military Medicine and Surgery announces the following papers to be read:—

Dr. Harvey Sutton, O.B.E.:
The First Mobile Sanitary Section.

Dr. J. S. Purdy, D.S.O.:
Sanitary Organization for War.

Dr. C. Bickerton Blackburn, O.B.E.:
Visceral Manifestations of War Neurosis.

Dr. P. G. Dane:
The After-treatment of Nerve Suture (at the combined session with the Section of Surgery).

Dr. J. W. Springthorpe:
(i.) Experience with Soldiers' Hearts.
(ii.) Some Lessons of the War.

Dr. G. C. W. Holmes:
Application of War Methods to Civil Methods (at the combined session with the Section of Public Health).

Dr. N. Hamilton Fairley, O.B.E., and Dr. H. R. Dew:
Observations on the Clinical and Applied Pathology of Malaria.

Dr. A. Graham Butler, D.S.O.:
The Problems of the Recruit.

Travelling Arrangements.

The following notice is issued for the benefit of members travelling from Victoria to the Congress:—

The first class single railway fare from Melbourne to Brisbane for a member of Congress and his wife, accompanying him, is £5 for each person. To obtain this reduced fare, each person must present at the booking office in Melbourne two vouchers, to be obtained from the Congress Secretary in Victoria, 13 Collins Street, Melbourne, not later than Saturday, August 14, 1920. The member can leave Melbourne on Tuesday (August 17), Wednesday (August 18), Thursday (August 19), Friday (August 20), or Saturday (August 21). The journey may be broken for one night only in Sydney on both the forward and the return journey. No return tickets are issued. The tickets may be purchased and sleeping berths reserved for the through journey to Brisbane at the Tourist Bureau, Collins Street, or at Spencer Street (foot of Bourke Street) fourteen days before the date of the commencement of the journey. To secure the concession for the return journey, the return voucher, previously stamped at the Melbourne booking office, must be presented at Brisbane. The return journey must be begun not later than September 23, 1920. Members residing in country towns in Victoria can obtain from the Congress Secretary for Victoria a voucher entitling the holder to purchase a return ticket from the country town to Melbourne at holiday excursion rates. A separate voucher is required for the member's wife. Country members will further have to secure the vouchers for the journey from Melbourne to Brisbane. These vouchers will be issued not later than August 14, 1920.

Members who live on the North Eastern Line in Victoria must make their applications for the necessary vouchers for tickets from places on this line to Brisbane at an early date. Special notice has to be issued by the railway officials at Spencer Street to the station masters at the stations on this line.

No shipping concessions can be obtained.

The Australian United Steam Navigation Company's *Wodonga* leaves Melbourne on Saturday, August 14, 1920, arrives at Sydney on August 16, 1920, leaves on the following day and arrives at Brisbane on Thursday, August 19, 1920.

The Howard Smith Proprietary, Limited, *Bombala* leaves Melbourne on Wednesday, August 18, 1920, arrives at Sydney on August 20, leaves on the following day and arrives at Brisbane in the morning of August 23, 1920.

The first class single fare from Melbourne to Brisbane is £7 10s.. No return tickets are issued.

We are informed that the dates, fares and ships sailing are subject to variation. Members who wish to travel by sea, are urged to book early.

Organization.

We are pleased to announce that His Excellency the Governor-General will open the Congress.

We are informed that Lieutenant-Colonel W. Trethowan, of Perth, has accepted the position of Vice-President of the Section of Naval and Military Medicine and Surgery. The names of the other Vice-Presidents will be found in the official circular of Congress, published as a supplement to *The Medical Journal of Australia* of June 12, 1920.

PROFESSOR WILSON AND THE MEDICAL SOCIETY.

The University of Sydney Medical Society transformed its annual dinner on July 23, 1920, into a demonstration of farewell to Professor J. T. Wilson. Over 250 practitioners and students were present and exhibited unmistakable enthusiasm in entertaining their guests, the Professor and his wife. The toast was placed in the hands of Professor A. E. Mills and Dr. J. L. Hunter. Professor Mills threw his whole soul into an altogether delightful speech. He allowed his deep affection for his friend of thirty-three years to pervade every sentence and the expression of every sentiment. He was lavish in his praise, but not too lavish. The speech was spontaneous, elegant and almost inspired. It raised the already evident enthusiasm of his audience to a point of red heat.

Dr. Hunter, speaking for the junior graduates and undergraduates, had a difficult task to perform in following so excellent a speaker as the Professor of Medicine. He acquitted himself well and delivered a message from the younger members of the University which Professor Wilson will cherish as long as he lives. There was an unfortunate break between the speeches and the reply. The Committee made a mistake in interspersing musical items, at all events at this stage. The President of the Society presented the Professor with an illuminated address with due formality.

Professor Wilson accepted all the charming things that had been said of him gladly, although he was obviously unconvinced of their truth. He stated that, were it possible for him to reconsider his decision, he would certainly adhere to his determination to accept the Cambridge professorship, because he felt he could not live up to the reputation created for him by Professor Mills and Dr. Hunter.

NOTIFICATION OF ANCHYLOSTOMIASIS, MALARIA AND BILHARZIOSIS.

The Commission of Public Health of Victoria has recommended that the diseases anchylostomiasis, malaria and bilharziosis should be included among the diseases which medical practitioners are required to notify. A proclamation has been issued and published in the *Victoria Gazette* of July 21, 1920, carrying into effect this recommendation.

THE RATTEN INQUIRY.

It will be remembered that the Medical Council of Tasmania recently applied to the Supreme Court for an order to remove the name of Victor Richard Ratten from the Register of legally qualified medical practitioners of Tasmania. The case came before the Chief Justice, Sir Herbert Nicholls, on July 16, and was continued on July 22 and 26, 1920. A summary of the proceedings will be published after the completion of the hearing.

The Council of the Victorian Branch of the British Medical Association would be glad to receive a copy of each of the following issues of *The Lancet*. They are required to complete the set. May 4 and December 21, 1918; January 25, 1919.

The Medical Journal of Australia.

SATURDAY, JULY 31, 1920.

The Repatriation of Medical Officers.

The *Repatriation Act* provides that returned soldiers may obtain certain benefits to enable them to establish or to re-establish themselves in civil life. The intention of the legislature and the desire of the community was and is that reasonable assistance should be given to returned soldiers, so that their efficiency as individuals, may be enhanced. This policy is not merely a sentimental one, born of a determination on the part of the people to make life as easy for the man who has served his country as it can be made. This aspect of repatriation is an important one. But there is a still more important significance to be attached to the value of the assistance promised to returned soldiers. War service tends to unfit men for civil occupation. Many were unskilled workers before they enlisted and as elements of the community, their intrinsic or economic value was low. As producers these unskilled workers contributed little to the commercial prosperity of this part of the British Empire. Others had received training in one of the countless callings before they went abroad. When they returned many of these men had lost ground. They had forgotten much; they had spent several years of young life carrying out duties foreign to their experience and training and during this time they had lost skill and dexterity. Added to this natural deterioration as producers, there is the physical and psychical effect of the concomitants of warfare. Some were wounded or otherwise impaired in their physical capabilities. Some were changed men when they returned. Both classes required careful handling to restore them to their former level of production. The future of the Commonwealth depends on the quality of the work of its citizens, not merely on the quantity. Mental ability, progression and technical skill are the chief assets on which a great Commonwealth must be built. In these circumstances it must be admitted that the expenditure of money on measures aiming at the enhancement of efficiency is economical and necessary. Efficiency can be increased by special training and also by giving the individual the opportunity to gain experience. The Act provides for both.

For a considerable time it has been felt that returned medical officers of the Australian Imperial Force were not receiving the same treatment as other returned soldiers. Men who had previously been in practice and who had thrown their immediate prospects to the winds, in order to join the Army, applied to the Repatriation Department for assistance to re-establish themselves in practice. These men needed certain "tools of trade" to enable them to carry out their duties. This equipment is expensive and their means were insufficient to enable them to purchase it. Surgical instruments, a motor car, a house and furniture comprise the more important and the more expensive parts of a doctor's equipment. The Department found that while it was reasonable to grant loans and gifts to a tradesman to stock a shop or to engage in a manual calling, the medical practitioner who had been in practice before enlisting, could not be assisted in this way, because his professional assets were supposed to reside within the medical man's brain. In another part of this issue we publish an extraordinary letter, in which the Comptroller delivers a lengthy *apologia* to cover the defects of the departmental organization. The letter is inaccurate in many particulars of importance. We wish to draw attention to some of the misleading statements. There is no excuse for a Governmental Department to misname the body with which it confers. It is a small matter that the Council of the Victorian Branch of the British Medical Association is referred to as the Victorian Council of the British Medical Association, but the mistake becomes misleading when the Branch is named the British Medical Association. The British Medical Association is an Empire-wide organization, with 22,000 members. The Victorian Branch of this Association did not confer with the Commission in the name of the medical profession in Australia, notwithstanding the statement contained in the letter. The Federal Committee of the British Medical Association in Australia is given a title, implying that it is located in Sydney. The fact that the Honorary Secretary resides in Sydney is a pure

accident. The Chairman resides in Adelaide. The Federal Committee communicated with the Department without any reference to the result of a deputation from the Victorian Branch of the British Medical Association to the Commission, because the Victorian Branch had no intention of putting forward views in the name of the medical profession of Australia. The Comptroller obviously failed to inform himself correctly concerning the bodies with which he was dealing.

In the first portion of the letter, the Comptroller makes the futile suggestion that the medical man who has sacrificed everything for his country and who has managed with difficulty to keep his wife and children alive while he was away on active service, should make "arrangements with a banking institution for the purpose of providing facilities for carrying on" his business. Will the Commonwealth Bank advance a medical man who has no money and no security, money to purchase his equipment? Will any bank consider for one moment a proposition from such a man to keep him, his wife and children alive while he is working up a practice? This suggestion does not reveal the sympathetic attitude of the Commission mentioned in immediate connexion with it. The Commission recognizes that the medical profession has arrived at the conclusion that the Commission has adopted an attitude toward the profession of antagonism. The letter which we publish in this issue, confirms us in that opinion.

The Comptroller sets forth the "opinions" of the Commission in a series of short statements. We claim that the facts do not coincide with the first statement (*i.*). Instances have occurred in which medical men have been refused loans for the purchase of "tools of trade." This constitutes the exclusion of medical men from the benefits provided by the *Repatriation Act*. The second statement (*ii.*) is a contradiction of the first. Returned soldiers without capital are eligible for assistance for the purchase of businesses and of "tools of trade." The Department refuses to assist a medical man to purchase a practice, a motor car or surgical instruments, except in cases when the young graduate has not been in practice before enlistment. The reply to the third statement (*iii.*) is that the most proficient medical practitioner cannot acquire a practice unless he has money to purchase his equipment and money to keep him and his family alive during the waiting period. We do not ask for special consideration, suggested in the fourth statement (*iv.*). We demand a fair deal for our returned colleagues whose financial condition has been ruined as a result of war service. The next paragraphs (*v.*) and (*vi.*) are quite irrelevant. Moreover, many medical officers who served in regimental aid posts and casualty clearing stations, realized to their dismay on discharge that they had lost touch completely with the conditions of private practice and that they had to re-learn much of their school work to become efficient practitioners in civil life. The fact that the medical practitioner was appointed with the rank and pay of a captain is used as an argument in support of the policy of the Commission to escape from its obligations to doctors. A medical man has to spend a relatively large sum to enter his profession. He is compelled to take up a certain social position in keeping with his calling. His wife and family cost more to maintain than do the wife and family of a manual worker. When the medical man returns from war service without a penny, unless it can be shown that his obligations are small, he is entitled to assistance from the Repatriation Department. We admit with pride that other Australian citizens sacrificed large incomes and were content with the pay of privates (*vii.*). If they need help on demobilization, it should be granted them. Comparisons are odious and in this connexion quite unnecessary. In short, the case made out in the letter is a weak one; the Commission seeks but fails to find an adequate reply to the charge that medical men are receiving differentiated treatment at their hands. The hard facts of actual cases cannot be explained away in a series of general statements. The letter is unconvincing. The final paragraph is not even true.

TREATMENT OF ANTHRAX.

Infection of the human subject by the anthrax bacillus is not a common occurrence in this country, yet it occurs sufficiently frequently to render the question of treatment of considerable interest and importance. Anthrax in man is always derived from some domestic animal or animal product, such as hide, hair or wool. The lesion usually appears about 24 hours after inoculation and the characteristic appearances are usually developed with rapidity. These include an eschar encircled by a ring of pearly vesicles surrounding which is a zone of extensive brawny

œdema. In a review of the cases of anthrax admitted to the Massachusetts General Hospital during a period of 30 years up to the year 1918, Dr. Albert J. Scholl[1] has collected records of 51 cases.

An attempt is made to estimate the value of various methods of treatment. Hiss, Zinssen and others have asserted that, although the bacilli are not usually demonstrable in the blood stream of an infected animal until just before death, the organisms invade the blood and lymph streams almost immediately on inoculation and are thus conveyed to all the organs. Ravenel and earlier observers stated that anthrax begins as a local infection and that the bacilli are localized in and near the lesion. For this reason immediate destruction of the pustule or excision of the lesion was generally advised as the safest course.

Numerous experiments performed on guinea pigs in which the infected tissues were rapidly amputated, showed that the general infection was not prevented by these measures. Excision of the lesion is therefore to be regarded as harmful, since it tends to break down the natural barriers to the spread of infection and increases the absorption of toxic substances from around the lesion. The experiences of excision at the Massachusetts General Hospital indicate that this procedure is usually followed by rapid extension of the œdema, septicæmia and death. The consensus of modern opinion favours immobilization and elevation of the affected area, together with energetic local treatment of the lesion. Good results have been reported after treatment by cauterization of the infected part with potassium hydroxide or the injection of solutions of carbolic acid about the region of the wound. Italian observers have reported successful results following the injection of anthrax serum as advocated by Sclavo.

Krause in a number of recent articles claims a considerable reduction of the mortality from the use of normal serum, 30 c.cm. to 50 c.cm. being injected daily, either subcutaneously or intravenously.

On the whole, conservative methods of treatment offer better results than surgical intervention, since there is in all probability a systemic infection from the outset.

CANCER OF THE COLON.

Carcinoma of the large bowel is not only one of the most readily recognizable varieties of malignant disease of the alimentary tract, but it is also a condition particularly favourable for radical surgical treatment in its early stages. These facts make it a matter of the utmost importance that the pathological condition should be recognized early, while the growth is still localized to the wall of the gut and before glandular metastasis has occurred. In a review of the early symptoms of cancer of the colon, Dr. Seton Pringle[2] lays particular stress on the necessity for the recognition of the existence of early malignant disease long before the classical symptoms are fully manifested.

In a spare individual, unless the growth lies in the pelvic colon or in the hepatic or splenic flexure, the tumour mass is often palpable on careful examination before any serious narrowing of the lumen of the bowel has taken place and may be discovered during the routine examination of the abdomen. This author states that in patients in which gross obstructive symptoms are the first abnormality observed, the growth is situated in 80% of the cases in the pelvic colon, where it is frequently not palpable by either abdominal or rectal examination.

In the development of cancer of the colon four clinical stages may be recognized—tumour, ulceration, stenosis, dissemination. Symptoms are usually inconspicuous in growths involving the pelvic colon until the stage of definite ulceration has been reached. At this stage the passage of blood, mucus or pus in the motion unaccompanied by pain should lead to the suspicion of the possibility of malignant disease and calls for the most careful and searching examination. Bismuth meals or enemata may or may not furnish reliable evidence at this stage. Sigmoidoscopic examination is likely to prove of greater value. The onset of stenosis is usually evidenced clinically by definite symptoms. A patient whose bowels have previously been regular, may complain that he has two or three small motions daily, associated with a feeling of dissatisfaction that the bowel has been incompletely evacuated. Similarly, in a patient accustomed to one or two motions daily after the habitual use of an aperient the earliest symptoms noted are, in many cases, an undue frequency of the motions following the usual aperient. Such a disturbance of function should lead to careful microscopic examination of the fæces for the presence of pus or blood cells. When stenosis becomes more marked, the symptoms become more definite. At this stage radiographic examination may or may not yield a positive result. A negative result does not by any means exclude the presence of malignant disease. Obstruction of the lumen of the bowel leads to hyperperistalsis above the stricture. At the same time the circular fibres of the gut below the obstruction become inhibited and the characteristic "ballooning" of the rectum may frequently be found on examination. This dilatation of the bowel below the stricture is due to the reciprocal innervation of the alimentary tract, acting in accordance with the principle of integrative action of the nervous system.

The recognition of the early symptoms and signs of malignant disease should lead to exploratory laparotomy without delay, so that the surgeon may be in a position to deal efficiently with the pathological condition before the patient has become poisoned from intestinal resorption and prior to the onset of the signs of gross obstruction of the bowel.

[1] *Journal of the American Medical Association*, May 22, 1920.
[2] *The Dublin Journal of Medical Science*, May, 1920.

THE MELBOURNE PERMANENT COMMITTEE FOR POST-GRADUATE WORK.

At a meeting of the Melbourne Permanent Committee for Post-Graduate Work held on July 22, 1920, it was determined that a post-graduate course should be held in Melbourne during the fortnight beginning November 8, 1920. A schedule will be issued within a short time containing the names of the lecturers and demonstrators. Practitioners desirous of attending are requested to send their names to the Honorary Secretary, Dr. J. W. Dunbar Hooper, as soon as possible after the syllabus has been published in the *Journal*.

Abstracts from Current Medical Literature.

THERAPEUTICS.

(37) The Tropeines.

A. R. Cushny has continued his studies of the optical isomers and has examined the action of a number of tropeines in antagonizing pilocarpine (*Journ. Pharmacol. and Exp. Therap.*, April, 1920). The various drugs were tested on a terrier bitch with a permanent submaxillary fistula. The tropeine was injected subcutaneously ten minutes before an injection of 5 mgrm. of pilocarpine was given. Cushny has found that while tropeine is devoid of inhibitory action on the secretion of saliva, many of its compounds which contain the benzene nucleus, possess the characteristic action. This action is greatly intensified by the presence of a hydroxyl group and of asymmetrical carbon in the side chain. The highest degree of activity is reached when tropeine is combined with an acid of the benzene series containing a hydroxyl and an asymmetrical carbon in the side chain, the molecule being lævorotary. The most active of the series has proved to be *l*-hyoscyamine. This body is considerably more active than its nearest homologues which do not possess the asymmetrical carbon, but Cushny points out that it is doubtful whether this alone accounts for the lessened activity. The presence of the asymmetrical carbon without the hydroxyl, as in the case of phenylacetyl-tropeine, apparently influences the activity. Methyl-atropine has a weaker action than *l*-hyoscyamine, but a stronger action than atropine. The next substance in the series is *d*-hyoscamine, which is followed by *l*-homatropine, *dl*-homatropine, *d*-homatropine, while phenylacetyl-tropeine and the other homatropine isomers form a group with distinct but very weak action. The sudden change seen on passing from the tropeines of the simpler aromatic acids to the aliphatic tropeines bears out the assumption that the presence of the hydroxyl group is a determining factor. A similar behaviour is noted in the adrenaline bodies. The presence of asymmetrical carbon in the side chain alone does not appear to govern the pharmacological activity, but when this is associated with a phenolic hydroxyl the substance has a high degree of activity. Cushny is tempted to draw an analogy between the asymmetrical carbon and Ehrlich's haptophoric group and between the hydroxyl and Ehrlich's toxophoric group, but he recognizes that since some of the tropeines have neither of the factors and yet exhibit slight atropine action, the analogy breaks down. He is therefore more inclined to regard the association of these factors as endowing the whole molecule with a special physical property. The asymmetrical carbon, governing the direction of optical rotation as it does, appears to exert an influence analogous to that in Fischer's lock and key reactions. Cushny has further found that methyl atropine has an action approximately once and a half times as powerful as that of pure atropine.

(38) Oil Ether Colonic Anæsthesia.

A. E. Boyd (*Dublin Journ. Med. Science*, May, 1920) states that the administration of ether by the colon for anæsthetic purposes was first practised as far back as 1847. Liquid ether mixed with water was first used, but was abandoned in favour of ether vapour. The method fell into disuse because of the dangers it involved. Recently Gwathmey introduced the use of oil ether colonic anæsthesia. Oil solution was suggested, primarily with a view to reducing the volume of the fluid injected. There are also other advantages for this method. The oil tends to prevent local irritation and its great affinity for ether prevents too rapid absorption, the ether leaving the oil uniformly as vapour. The technique recommended is as follows: A cathartic of castor oil is administered on the night preceding operation, followed in the morning by enemata, given hourly until the return is clear. An hour before the introduction of the oil ether mixture chloretone, grammes 0.3 to 1.5, in a suppository or in solution, is administered *per rectum*. Paraldehyde in olive oil may be given instead of chloretone. Half an hour later a hypodermic injection of morphine and atropine is given. Twenty minutes after the hypodermic injection the oil ether solution is run into the colon, the apparatus required being a small catheter, a funnel and a measure. The mixture is run in slowly, one minute being allowed for each 30 c.cm.. The patient lies in bed in the Sim's position. The percentage and amount of mixture vary with the size and general condition of the patient. A 50% to 60% solution is sufficient for children and weak anæmic adults. A 75% solution is used for normal adults. The amount of mixture given is approximately 3 c.cm. per kilogram of body weight. The amount should never exceed 250 c.cm.. No preliminary medication is required in the case of children. The anæsthesia usually lasts from 2½ to 3 hours. When the operative procedure is finished the patient is returned to bed and the remainder of the solution is washed out of the colon. Finally, 120 c.cm. of olive oil are then injected and left in the bowel. It is claimed that the particular field of usefulness for this method of anæsthesia lies in operations upon the head and neck and where it is inadvisable for the anæsthetist to intrude on the field of operation. The lessening of the psychic factor in regard to shock is claimed as an advantage, particularly in cases of exophthalmic goitre. The method is contraindicated in colitis and in cases having a pathological condition of the lower bowel.

(39) Manganese in Suppuration.

Manganese in the form of a colloidal suspension has been comparatively recently introduced as a means for the treatment of suppuration. E. Watson Williams (*Practitioner*, May, 1920) states that manganese is not bactericidal *in vitro* and that its action is therefore to be regarded as a "vital" one. It is suggested that the two properties which this metal shares with iron, copper, arsenic, etc., *i.e.*, the power (*a*) of combining with oxygen in two proportions, (*b*) of influencing the destruction of micro-organisms within the body, may be related. Manganese is stated to remain in circulation for some days after injection. It is supposed to circulate as a hydroxide adsorbed to a molecule of the protein of the lymph. It is stated also to have the power of stimulating the hæmatopoietic function. The technique of injection advocated is based upon that described by McDonagh. The suspension is prepared and isotonized at the time of injection by mixing the two sterile stock solutions in the syringe. The injection is then made slowly into the substance of the gluteus or deltoid. The dose advocated is from 0.5 c.cm. to 5.0 c.cm. of a 1‰ suspension, one dose being given daily in acute cases. In chronic cases several days separate doses; from four to seven doses are usually sufficient. No general reaction has been observed. The metal is stated to be excreted by the kidney, probably also by the bowel. Excellent results have been claimed in chronic coccal infections, particularly infections of the antra and accessory nasal sinuses.

(40) Iodine Absorption from the Skin.

N. C. Wetzel and T. Sollman (*Journ. of Pharmacol. and Exp. Therapeutics*, April, 1920) state that the absorption of iodine through the human skin is not nearly as extensive as is commonly supposed. Actual observations on the subject of iodine absorption have been scanty, though the impression prevails widely that free iodine is absorbed quite readily from the skin. Experiments are recorded by Wetzel in which tincture of iodine was applied to the palmar surface of the forearm. In other cases preparations such as iodine ointment, "iodex" and iodized poppy seed oil were thoroughly rubbed into the skin of the thorax. In each experiment the total urine was collected in convenient fractions during 24 hours. None of the experiments revealed a trace of iodine, though the tests employed for its detection were delicate, the limit of sensitiveness of the method used being 0.01 mgr. of iodine. It is concluded that the failure to excrete iodine does not necessarily mean that none has been absorbed. It is conceivable that very small amounts may have been retained completely in the body. It is, however, clear that the absorption of iodine through the skin is not nearly as extensive as is commonly supposed. If the skin has been injured by vesication or by repeated applications of strong iodine solutions, its permeability may, however, become increased.

UROLOGY.

(41) Hæmaturia.

Oscar E. Block (*Urolog. and Cutan. Review*, April, 1920), writing on hæmaturia, recognizes that the term is only

a symptom due to a definite causative factor located somewhere in the urological tract, an apparent exception being the hæmaturia noted in hæmophiliacs. It may be due to various lesions: (*a*) renal, (*b*) ureteral, (*c*) vesical, (*d*) prostatic, (*e*) urethral. Among the ætiological factors causing hæmaturia may be mentioned, in the probable order of frequency: (*i.*) neoplasms, benign and malignant; (*ii.*) internal and external trauma. (*iii.*) various systemic and local diseases; (*iv.*) foreign bodies, calculi, parasites; (*v.*) local congestive, infective and ulcerative lesions; (*vi.*) the ingestion of certain drugs; (*vii.*) aneurysms and varices. Correctness in diagnosis may be assured in most instances by proper use of cystoscopy, ureteral catheterization, pyelography and radiography, so that the expression "symptomless hæmaturia" should be discarded and "essential hæmaturia" restricted. Medicinal treatment, styptic and coagulative, has been faithfully tried and for the most part found wanting. In certain types of hæmaturia quietude in the recumbent position will be found beneficial, especially in moderate hæmorrhage of the intermittent type, not due to surgical lesions. When due to surgical lesions, particularly neoplasms, benign or malignant, foreign bodies, calculi, renal tuberculosis, trauma, etc., prompt operative intervention is necessary. A wound of the kidney associated with hæmaturia should be opened up, repaired and drained. The author mentions two cases of trauma of the kidney associated with hæmaturia without an open wound. In each case the kidney was lacerated from pole to pole. The kidney wound was packed with gauze. Hæmorrhage ceased in a short time and the kidney made a perfect recovery in regard to its function. Where part of the kidney is damaged beyond repair, it may be removed without sacrificing the whole of the kidney. The extra-peritoneal method of approach should always be used, unless there is positive evidence of injury of the peritoneum or adjacent viscera. Hæmaturia without history of injury calls for diagnosis, not only as to cause, but as to location. Erythrocytes in the urine eliminate hæmoglobinuria. Renal epithelium and casts point to the kidney as the source of the hæmorrhage. Cystoscopy is invaluable, the source of the bleeding from bladder or ureters being generally demonstrable. Ureteral catheterization will materially assist the diagnosis. The blood pressure should be estimated. The most frequent causes of renal hæmaturia are trauma, calculus, tuberculosis and tumour. Calculi can be readily demonstrated by X-ray examination. Renal tuberculosis frequently causes hæmaturia, intermittent in type. Primary renal tuberculosis is very rare. The treatment consists in removal of the affected kidney, when the disease is unilateral; when it is bilateral the more severely affected kidney may be removed with marked benefit. When both are severely damaged, drainage may cause decided improvement. Neoplasms in children (generally sarcomata) seldom cause hæmaturia, whereas hypernephromata or carcinomata, the commonest tumours in adults, generally have hæmaturia as their first symptoms. When the tumour is small, the diagnosis is extremely difficult. In all cases of so-called "essential hæmaturia" syphilis should be suspected and even when the Wassermann test yields a negative response, antisyphilitic treatment should be instituted. In Kretschmer's series of 238 cases of hæmaturia, accurate diagnosis was possible in 197. Neoplasms were the most frequent cause. Vesical tumours occurred in 60 cases (30%), prostatic lesions in 25, including 12 malignant growths and 13 cases of simple hypertrophy. There were 33 cases of renal and vesical tuberculosis. Among 74 renal lesions there were 12 neoplasms. There were eight cases of renal calculus, ten of ureteral calculus and 14 of urocyst. In six cases complete examination, cystoscopy, ureteral catheterization, Röntgenography and pyelography failed to disclose the lesion. Block's conclusions are that calculi, neoplasms and tuberculosis are the most frequent cause of hæmaturia. Floating kidney as a cause of hæmaturia is assumed by some to act by producing congestion, by others by producing nephritis. Many authors consider that movable kidneys are unusually prone to infections. Its treatment depends on the degree of mobility, on the clinical symptoms and on the presence or absence of hæmaturia and infection. Support and fixation, to produce adequate drainage, are the main lines of treatment.

(42) Lithiasis of the Urinary Organs.

Irvin S. Koll (*Urol. and Cutan. Review*, May, 1920) divides stone formation in the urinary passages into primary, uric or oxalic acid, and secondary, phosphatic. The admixture of both is of frequent occurrence. Secondary phosphatic concretions occur as a result of inflammation and suppuration of the renal parenchyma, augmented by alkalinity of the urine. Primary phosphatic concretions are the result of hyperalkalinity of the urine, due, perhaps, to ingestion of foods rich in calcium salts or to various metabolic disturbances. Uric and oxalic acid, cystin and xanthin deposits may be considered as being the results of similar conditions. Lithiasis may occur at any age, but is most common between 40 and 50. Impaired nutrition as a result of defective hygiene, improper diet, or overfeeding, or insufficient elimination undoubtedly plays the most important rôle as the causative factor in the formation of salculi. Many and various theories are advanced as to the actual mechanism and formation of calculi. Calculi are composed of many salts; uric acid calculi are commonest. They vary in size; they are generally small and regular in shape and very hard. On section they show concentric striation. Urate calculi are generally composed of a mixture of ammonium, potassium, sodium and calcium urates, often, in addition, uric acid, phosphates and oxalates are present. They are not as hard as the uric acid stones, but their gross appearance is similar. Salts of calcium and ammonium constitute the oxalate formation. These calculi are rarely pure, being combined with uric acid or urates; they are rough and are the hardest of all calculi. They vary in colour from reddish brown to black. Phosphatic calculi are generally single and are composed of calcium and magnesium salts. They have as their origin a putrefying alkaline urine. They are very soft and easily crushed. Xanthin calculi are invariably mixed with uric acid. They are greenish in colour and are very hard. Cystin stones are very rare. They are usually formed in the bladder. They are always pure and hard. They occur in several members of one family and are supposed to be due to disturbed protein metabolism. Bilateral calculi are much more common than was formerly suspected. Stone in the kidney generally causes definite morbid changes, especially those due to infection of greater or less degree, which may or may not clear up, if the stone be expelled spontaneously or removed. In 95% of cases calculi which pass from the kidney to the ureter, pass into the bladder spontaneously or by the aid of lubrication through the ureteral catheter. Vesical calculi either form as deposits on renal calculi which have passed into the bladder and are made up of uric acid, urates or oxalates, or are of phosphatic origin and occur in a strongly alkaline urine. The main means of diagnosis is by skiagraphy. Renal calculi should be removed whenever possible through the kidney pelvis. Ureteral calculi should be given ample time to pass of their own accord, or should be assisted by intra-ureteral manipulation. Vesical calculi should be crushed, if not too large nor hard and if the bladder is not infected; under other conditions suprapubic cystotomy should be performed.

(43) A Calculus of Unusual Size.

Frank Kidd (*Lancet*, January 17, 1920) reports a case of ureteral calculus of unusual size removed by him from a patient, aged 18 years. The primary condition was a congenital stricture of the mouth of the ureter, secondary dilatation of the ureter and prolapse of the dilated ureter into the bladder. The stone was removed extraperitoneally under spinal anæsthesia and the ureter stitched up. A small tube was put down to the ureteral wound for 24 hours. The calculus was 5.8 cm. in its long diameter and 2.5 cm. in its short; it weighed 28 grammes. It consisted of phosphates, with a trace of oxalates; it contained no cystin, no carbonate and no uric acid. It gave rise to a dense shadow when exposed to X-rays. The patient's recovery was uneventful. The author comments on the fact that large ureteric stones, as a rule, cause fewer symptoms than small ones and that ureteric stones in the lower portion of the ureter can generally be delivered by splitting up the mouth of the ureter and by lubricating the stone with paroleine.

British Medical Association News.

SCIENTIFIC.

A meeting of the New South Wales Branch was held at the B.M.A. Building, 30-34 Elizabeth Street, Sydney, on June 25, 1920, Dr. C. Bickerton Blackburn, O.B.E., the President, in the chair.

Dr. George E. Rennie delivered an address on the ductless glands (see page 93).

Dr. John Flynn stated that the physiology and pathology of the ductless glands were at present very incomplete. Many of the results derived from experiment were contradictory and the subject was therefore in a state of much confusion. He would therefore only touch on those facts that were most convincing and most generally accepted. Though many of these facts had already been disposed of by Professor Wilson and Dr. Priestley at a previous meeting of the Branch, held at the University, and by the reader of the able lecture they had just heard, there still remained a rich gleaning awaiting other speakers. Casting a comprehensive glance over the subject as a whole, they would note that the various syndromes associated with the ductless glands could be divided into two broad classes. In the first place, there were those due to primary glandular insufficiency and, in the second place, those due to hyperactivity of the individual glands. The former class was the better known, because of the possibility of the experimental reproduction of these syndromes, thus complying with that very important condition of inductive reasoning, the capacity of verification. As examples of this class might be mentioned myxœdema, Addison's disease, pancreatic diabetes, parathyreoid tetany, the eunuchoid state, the *dystrophia adiposo-genitalis* due to deficiency of the pituitary gland. The reverse states, those of the second class, those due to hyperactivity, were not so well understood, partly because they were not yet capable of experimental reproduction, though some of them, such as exophthalmic goitre, acromegaly and the *status thymicus*, were generally considered to be due to primary hyperactivity. It was quite possible, however, that in the latter the change in secretion might be a matter of quality as well as quantity. In any case, the source of the stimulus, biochemical or toxic, leading to perverted or increased secretion, was not yet apparent. In dealing with the individual glands, Dr. Flynn stated that he would select the thyreoids as the best known and the most studied. He called attention to the results of Wilson's investigations at the Mayo Clinic. These investigations revealed the remarkable parallelism existing between the pathological findings and the clinical symptoms in parenchymatous and colloid goitre in 80% of the cases examined. He would also direct attention to the successful isolation of the thyreoid hormone at the same clinic as a crystalline substance with a definite chemical formula. This wonderful substance relieved all the complex symptoms of myxœdema. Kendall had stated that every cell in the body responded and that the effect was not located in any organ or system of organs. Murray, of Manchester, in his presidential address to the British Medical Association some years ago gave it as his opinion that the thyreoid secretion might be polyvalent and might contain different hormones, each capable of activating different organs. This opinion was no longer tenable. Kendall had shown that the same crystalline substance of known composition which could be measured and weighed, caused the œdema to disappears, the skin to become moist, the hair to cease falling and the sluggish mentality to disappears. Dr. Flynn referred to some of the incidents in connexion with the isolation of thyrotoxin.

In the third place he directed attention in addition to the frank cases of defective or excessive function of the thyreoid, to the masked cases: the *formes frustes*. A sign of some importance in these cases was a thinning of the eyebrows or a complete absence of hair in the outer third of the eyebrow. When a person showed a tendency to repeated attacks of cold or was liable to chilblains, it would be worth trying the effect of small doses of thyrotoxin or, if that were not procurable, of the dried gland. In cases of tachycardia for which a reasonable explanation was not forthcoming, it might be well to think of the thyreoid and to make a blood count, to ascertain if "Kocher's toxic reaction were not present." In this reaction the polymorphonuclear cells were reduced to one half and the lymphocytes were increased to double. Before taking leave of the thyreoid gland Dr. Flynn stated that he wished to pay a passing tribute to McCarrison for the clear understanding he had arrived at as to the nature of endemic goitre. Although Major McCarrison still believed that there must exist a specific intestinal organism of endemic goitre, the evidence seemed to point rather to an intestinal toxæmia.

In referring to the suprarenal bodies he stated that, notwithstanding a large amount of research work carried out during recent years, they knew little or nothing of the functions either of the medulla or of the cortex. There had been a large amount of assumption, but there was no evidence. It was assumed, for instance, that adrenalin naturally secreted might be the causal agent maintaining the normal vascular tone and when it was more concentrated, it might give rise to heightened blood pressure. He gathered from Dr. Rennie's paper that he was in accord with this view. There was no evidence whatsoever for such an assumption. On the contrary, it was extremely improbable, for the following plain reason. The concentration necessary for direct stimulation of the sympathetic could not exist in the general mass of the blood. The discoveries that remained to be chronicled concerning the suprarenal body were comparatively old. The first was that made by Addison in 1849, the second was that made by Oliver in 1894 as to the pressure effects of extracts of the medulla. The third discovery, the isolation in crystalline form of the active principle of the medulla, was made by Takamine. Epinephrin acted upon all plain muscle and gland cells supplied with sympathetic nerve fibres. Its action, whether augmentary or inhibitory, was the same as would be produced by stimulation of the sympathetic fibres going to the muscle or gland in question. Dr. Flynn stated that if it were not that he wished to keep clear of speculation, he would mention that the cortex seemed to be not without influence on the sexual glands. Thus, hyperplasia or tumours of the cortex in females were usually associated with diminution of certain feminine characteristics and with the development of those of the opposite sex.

The next gland that came for consideration was the pituitary. This, like the suprarenal, was of twofold ancestry. The anterior lobe was developed as a prolongation of the epiblast of the buccal cavity, but the growth of intervening tissue cut off all connexion with the mouth. Its precise function was not yet known, but it was surmised that it was a vascular gland pouring a secretion into the blood which influenced growth. The posterior lobe was developed as an outgrowth from the third ventricle. In contained no nerve cells, only neuroglia. It was surrounded by epithelial cells and colloid derived from the *pars intermedia* and played the part of a gland in virtue of these epithelial cells. The nature of the active substance was unknown, although some of its effects were known. Injection of pituitary extract produced a temporary rise in blood pressure; a second injection not long after the first caused no additional rise. It caused a contraction of various forms of involuntary muscle, *e.g.*, uterine and intestinal, and it was considered that it acted in so doing directly on the muscle fibre, as contrasted with epinephrin, which acted on the myoneural function. It had a specific dilating influence on the vessels of the kidney, in contrast to the constricting influence of adrenalin on the same vessels. This dilatation was accompanied by marked diuresis. It was paradoxical that, whereas extract of the posterior lobe was active and, as far as was known, that of the anterior lobe inactive, yet the removal of the posterior active lobe produced no symptoms, while removal of the anterior apparently inactive lobe caused death. Partial removal of the anterior lobe produced a condition in which adiposity and atrophy of the organs of generation were the most marked. A closely allied clinical condition had been well described by Cushing. Excess or perversion of pituitary secretion, if the increase or perversion occurred prior to adult life, accounted for gigantism. On the other hand, if the morbid change occurred after maturity had been attained, the condition would be that of acromegaly, which was not very rare in Australia. Dr. Scot Skirving had reported four cases at the Dunedin Congress and he, Dr. Flynn, had reported a case some years previously at a meeting of the Branch.

As the time at his disposal would not admit of a review

of the remaining glands, he passed on to the consideration of the best authenticated internal secretion, namely, gastric and pancreatic secretin. The former was associated with the name of Edkins. In a recent work Hurst had shown that there was a special type of stomach that predisposed to both gastric and duodenal ulcer. This meant that ulcer was not an acquired character; its predisposing cause was congenital. The pyloric segment of the normal stomach differed from the fundal not only in its thicker muscular coat, but also in its minute structure. In the fundal zone the chief glandular cells secreted pepsin and rennin and the ovoid parietal cells formed the hydrochloric acid. In the pyloric region there were no ovoid parietal cells. It had been found that the injection of an extract of the pyloric mucous membrane into the circulation of fasting animals caused the secretion of a juice containing both hydrochloric acid and pepsin. The injection of a similar extract of the fundal glands produced no such effect. The pyloric glands therefore produced a hormone or chemical stimulant to the continued secretion of the gastric juice by the fundal glands. In the hypotonic stomach the emptying of the stomach was slow. The chyme was kept in prolonged contact with the pyloric glands, which in turn stimulated the fundal glands. The duodenum was protected from excessive acidity because the passage of acid chyme through the pylorus was so slow and intermittent that the alkaline duodenal contents were capable of neutralizing it to a large extent. In the hypertonic type of stomach, on the other hand, the first portion of the duodenum was kept filled with excessively acid chyme and neutralization with the alkaline duodenal contents became impossible. There was hyperchlorhydria in both types but at different sites. The object of treatment was to reduce the secretion of gastric juice as much as possible. This was best carried out by the method of Sippey, of Chicago. He gave 150 c.cm. of milk every hour from early morning till late at night and prevented the formation of curd by the addition citrate of soda. The acidity was neutralized by oxide of magnesia, given in small doses with the milk, more easily with fewer drawbacks than by any other drug. The rationale of the treatment was to keep pyloric glands functionating at the lowest possible ebb consistent with digestion and that their effect on the production of acid in the fundal glands was neutralized by the magnesia.

Dr. Harvey Sutton stated that he regretted that he was unable to present any facts which would counteract the hopeless outlook sketched by Dr. Rennie in his admirable paper. In connexion with the enlargement the thyreoid gland, he stated that epidemic centres of goitre undoubtedly existed. At Bathurst it was found that goitre was common even in children under 14 and that it was often associated with enlargement of the tonsils. He spoke of the difficulty which arose in the attempt to decide whether enlargement of the thyreoid gland would end in exophthalmic goitre. In regard to McCarrison's suggestion of a protozoal infection of water, he thought that the presence of goitre in districts where people obtained their drinking water from tanks, was significant. In dry districts the dust was usually found to be sterile, but in districts with a heavy rainfall infection of water in tanks could occur from the roof washings.

In the next place, Dr. Harvey Sutton stated that cretins were often found in families the other members of which showed other disturbances of the thyreoid. It had been suggested that this was due to a destructive action on the thyreoid gland in the mother. A certain amount of experimental work had been carried out in this connexion. Mongols were almost invariably either the first child of a woman over 30 years of age, the last child of a woman over 40 years of age or the middle child of a woman who had had a severe illness during pregnancy. It was worthy of note that while the effect of thyreoid tablets in cretinism and analagous conditions was excellent, the effect on the mental development was poor. Dr. Flynn had spoken enthusiastically concerning thyrotoxin. The experience referred to caused him to wonder whether thyreoid extract contained thyrotoxin. On the other hand, the physiological function of the thyreoid gland in controlling mental development was undoubted. The pituitary gland did not exercise any control of this kind. He referred to an instance of hypopituitism in a fat boy strangely like Dickens's celebrated fat boy. The individual in question was a heavy, large, fat boy, whose secondary sexual characters were below standard in development. This boy's intelligence, however, was above par. Dr. Sutton emphasized the fact that in this type of disturbance the individual returned to a normal condition. The mothers of these children always described large jaws, large hands and large feet. Boys with increased suprarenal secretion manifested a very different condition. There was precocious sexual development and even signs of sexual aberration. The children were not large children and there was usually an impairment of growth of the skeleton and of mental development.

Dr. W. F. Litchfield thanked Dr. Rennie for his highly interesting paper. He spoke of the relation of the secretion of the suprarenal glands and of the pancreas to diabetes. He had recorded a case of diabetes in which the suprarenal glands were greatly hypertrophied and showed bulbous outgrowths. He had since reported a similar case. It was known that the injection of adrenalin produced glycosuria and it had been suggested that the mechanism was similar to that called forth by the puncture of the floor of the fourth ventricle. In athyreodism there was an increase in the sugar tolerance, while in hyperthyreoidism there was a lowered sugar tolerance. It appeared that there was a distinct relation between glycosuria or diabetes and hyperactivity of the suprarenal bodies, just as it was known that the pancreas exerecised a control over the carbohydrate metabolism. If they accepted diabetes as a single disease, it would seem that it was produced by excessive activity of the suprarenals and a deficiency of the pancreas. In the pathology of this disease, therefore, there would be a disturbance of balance between the secretions of the two ductless glands. Dr. Litchfield held that no adequate explanation had yet been offered concerning the polyuria of diabetes mellitus. It had been noted that polyuria occurred in connexion with neoplasms of the medulla of the suprarenal glands, with secondary growths in the long bones. This would suggest that a relation existed between the secretion of the suprarenal bodies and the excretion of urine. It was significant that the polyuria did not disappear completely when a diabetic was freed of glycosuria by Allen's treatment.

Dr. C. B. Blackburn, O.B.E., referred to a case of hypothyreodism in a girl. The skin was dry and the patient was thin and all the signs and symptoms were quite different from those usually associated with myxœdema. Under thyreoid treatment this girl increased in weight by over 22 kilograms in a few weeks and the skin became moist. She left off taking thyreoid extract and soon relapsed. On readmission to the hospital she was again given thyreoid extract with equally good results. Dr. Blackburn also referred to the observations carried out by Dr. Hamilton Fairley and himself in Egypt. They had found acute changes in the suprarenal glands *post mortem* in patients who had died of influenza. Blood cysts of considerable size were noted and in many cases there was very little adrenal structure left.

Dr. Rennie replied briefly.

The undermentioned have been elected members of the New South Wales Branch:—

Miss Adèle L. Aitken, M.B., Ch.M., 1918 (Univ. Sydney), Sydney Hospital.

P. de Luca, Esq., M.D., 1895 (Univ. Naples), Many Peaks District Hospital, Queensland.

J. L. Digby, Esq., M.B., Ch.M., 1915 (Univ. Sydney), Blayney.

C. O. G. Donovan, Esq., M.B., Ch.M., 1915 (Univ. Sydney), Waverley Street, Waverley.

K. R. McGregor, Esq., M.B., 1919 (Univ. Sydney), Delegate.

W. E. J. Paradice, Esq., M.B., Ch.M., 1920 (Univ. Sydney), Gordon Road, Chatswood.

ASSISTANCE TO RETURNED MEDICAL OFFICERS.

Sir: We beg to submit herewith a communication received from the Department of Repatriation, which appears to be a statement of their policy as regards assistance to returned medical officers.

One of the first subjects our Society was called upon to

investigate, after its inception eleven months ago, was the refusal of the Department of Repatriation to assist returned medical men in either purchasing a practice or in providing the wherewithal to run one.

Despite repeated communications and interviews with the Deputy-Comptroller for New South Wales, the Comptroller of Repatriation, the Chairman of the Repatriation Commission and the Prime Minister, this is the first statement in writing that we have been able to obtain. In view of this matter being of widespread interest throughout the Commonwealth, and as much misapprehension exists as to the attitude of the Department, our Committee would esteem it a favour if you could publish the statement. In order that it may be clear to those who have not been in close touch with the subject, we consider it necessary to make a few comments.

(1) The Honorary Secretary of the Victorian Branch of the British Medical Association has written that the sub-committee which waited on the Commissioner in October 19, 1919, represented only the Council of the Victorian Branch and were inquiring simply into complaints received from some Victorian medical officers as regards the Repatriation Department refusing them assistance to commence practice. The Commissioner appears to have regarded this deputation as representing the profession as a whole and has thereby caused a grave misunderstanding, especially apparent when we see it is minuted that: "The Commission is, therefore, quite satisfied that the position in regard to medical men has been settled as between the Department and those representing the profession."

(2) We have no knowledge of the views of the New South Wales State Board as expressed in the Chairman's memorandum of September 23, 1919, but we understand that the State authorities were favourably inclined towards our representation.

(3) Regulation 78 is the one under which returned medical officers have asked for assistance in vain, although, as the essential parts read, it seems plain enough:—

"A State Board may make an advance by way of loan for the purchase of a business, plant, stock, or live stock, not exceeding the sum of £150, in each case to: (*a*) . . . . (*b*) . . . . (*c*) a soldier who immediately prior to enlistment was dependent for his living upon a business, owned and conducted by him, and disposed of his business in order to enlist, and who satisfies the State Board that he possesses the experience and ability to conduct with a reasonable prospect of success the business applied for: Provided that the State Board may in a special case advance an amount not exceeding £250 with the approval of the Minister."

(4) The Department evidently does recognize that some medical officers are entitled to some assistance under Regulation 75 concerning "Tools of Trade," as in the rulings of the Commission, No. 89, we find that these shall not include the furnishings of a doctor's surgery, such as surgical examination couch, typewriter, etc., but may include books of medical reference. Again in Ruling No. 95 it is laid down that men not in practice prior to enlistment are eligible for the £10 gift of tools of trade and up to £40 on loan for the same purpose.

(5) We have no knowledge of the contents of communications from the Federal Committee of the British Medical Association in Australia, or the letter from the Returned Sailors' and Soldiers' Imperial League, except that the matter has been brought before the notice of these bodies and their assistance was asked for.

(6) Our Society has asked that the Department include medical men as coming under Regulation 78 on exactly the same footing as all other returned soldiers, so that the maximum amount of assistance would be £250, this being little enough for a doctor to help establish himself in practice.

In view of the fact that each returned soldier placed on the land cost the country £1,500, our request seems very modest.

(7) In conclusion we would point out that owing to the refusal of the Department to assist returned medical officers—even when a "special case" had been presented—it is within our knowledge that some of them have been seriously and even disastrously handicapped in establishing themselves in civil life.

Considering the number who enlisted, there were comparatively few who applied for assistance and these only did so for very good reasons.

Medical men as a class are reputable individuals and any money advanced them would most certainly have been repaid in full. It is not yet too late to reopen this matter and we trust that the Department may even now ask for a conference with the Federal Committee of the British Medical Association.

Yours, etc.,

HUGH R. G. POATE,
CHAS. E. WASSELL,
Joint Honorary Secretaries.

The Society of Returned Medical Officers of N.S.W.,
Sydney,
July 24, 1920.

[COPY.]

Dear Sir: In reply to your communication of the 20th March I have now to advise you that this matter has been further considered by the Commission, which has recorded its views thereon as follows:—

On 10th October, 1919, Drs. J. Ramsay Webb, Dunbar Hooper and G. A. Syme, representing the Victorian Council of the British Medical Association, conferred with the Commission.

"On 13th November, 1919, the following decision of the Commission was recorded:—

"'With reference to the views of the New South Wales State Board, as expressed in the Chairman's Memorandum of September 23, 1919, in regard to the question of loans for profession men, *i.e.*, doctors, dentists, etc., the Commission has carefully considered the points raised. As a matter of fact, however, the points so raised do not create any fresh issues which have not already been traversed in respect to similar applications, which have been numerous. As previously stated the intention of Regulation 78 was not to provide loans for this class of case, the idea being to provide loans for men in small businesses who would be quite unable under ordinary conditions to obtain financial assistance from institution and others who make it their business to provide same. Applications from professional men range from £150 to £1,500 and the Commission felt that it was inadvisable to amplify Regulation 78 for the purpose of including this class. The Commission has adopted the same view in respect of loans for those other than professional men who do not come within the category of those whom it was originally intended to provide for under the Regulation (78), that is for men entering upon business undertakings of a larger magnitude than that contemplated under Regulation 78, and who, in the ordinary course of events, would naturally make arrangements with a banking institution for the purpose of providing facilities for carrying on their business. It has always seemed to the Commission, which is more strongly of the opinion to-day than ever it was, that any regulation providing loans should be retained in the most conservative form. The Commission is not oblivious to the view of treating applications from a sympathetic standpoint, but necessity to keep a reasonable check upon the financial undertakings of the Department brings about a situation which on the surface may appear to be quite unsympathetic. A feeling had grown up apparently in the minds of the medical profession that the Commission had adopted an attitude towards medical men and men of this class which, while not necessarily antagonistic, at any rate selected them for different treatment to that extended to other branches of the service, and when it became known to the Commission that such existed, it was arranged that a conference take place between the Commission and representatives of the Council of the British Medical Association. This conference took place some weeks ago, when the representatives were given an opportunity of most fully laying the case of the medical men before the Commission, and the Commission embraced the opportunity presented by this conference of most thoroughly

discussing the situation from every phase and pointing out to the representatives of this Association the difficulties involved in dealing with the professional men. It would take too long to traverse the points under discussion, but the net result was that the representatives of the Association expressed themselves as quite satisfied with the attitude adopted by the Commission in respect of the medical men, and also expressed their appreciation of the real difficulties which involved these questions. It was agreed that if the British Medical Association would draw up a list of instruments which were absolutely necessary as forming the skeleton of a medical instrument outfit, together with the approximate cost of same, the Commission would favourably consider the question of making provision for the granting of loans for the purpose of purchasing such outfit by those who were not possessed of same and had not the resources at their command to purchase same. It was further agreed that young medical men who had left the University directly to engage upon war service might be assisted in the direction of a limited sustenance for short periods, for the purpose of attending lectures agreed to by the medical faculty in order to brush themselves up on their return from active service and in the initial stage of their starting out upon their medical career. This list and the proposed course have not yet materialized, and the Commission still awaits same. The representatives of the Association undertook to convey to the members of the medical profession the result of the conference and explain the real difficulties which surround the repatriation of the professional man by the granting of loans to meet the special case of medical men. The Commission is, therefore, quite satisfied that the position in regard to medical men has been settled as between the Department and those representing the profession. So far as those of the dental profession is concerned no conference has taken place between representatives of the dental faculty and the Commission, nor does it seem at the present juncture that there is any particular need for such a conference. The feeling of the Commission is that anything which may be extended to the medical profession in the form of repatriation assistance might equally be extended to members of the dental profession, and the Commission does not feel that there is any reason so far evident to vary this proposal."

On the 4th December, 1919, following upon certain correspondence between the Comptroller and the British Medical Association, the matter was further considered, and it was agreed:—

"That having regard to the fact that there are cases of young medical practitioners who had not embarked on general practice prior to their employment in the Army Medical Service during the war, the Commission has had under consideration the question of assisting such towards the purchase of certain necessary instruments required in their profession and which they are not in a position to purchase. It has, therefore, been decided that in cases such as the foregoing a State Board may grant a loan under Regulation 75 for the purposes of purchasing such instruments, provided that each application be accompanied by a list of the instruments desired to be purchased and that such list be submitted to the Departmental Medical Officer for his approval as being reasonably necessary for the carrying on of the professional work of the applicant."

In the light of the foregoing the Commission is at a loss to understand the communication from the Federal Committee of the British Medical Association, Sydney, and the letter to the Minister from the General Secretary, Federal Executive of the Returned Sailors' and Soldiers' Imperial League.

"In answer to the above the Commission desires to restate its opinions as follows:—

(*i*) "It certainly is not to be contemplated that any eligible returned soldiers should be excluded from benefits under the *Repatriation Act*, and neither medical men nor any other class of returned soldiers are so excluded.

(*ii.*) "The reasons why benefits under Regulation 78 are available only for certain classes of applicants and for certain classes of small businesses are fully set out in the Commission's decision of 13th November, 1919.

(*iii.*) "The main asset which those members of the medical, legal and other profession still have, who, after their discharge are in possession of their full mental and physical faculties, is represented by the qualifications which they hold from having passed examinations and secured degrees, and from the training and experience which they have acquired.

(*iv.*) "Unquestionably many very heavy war sacrifices, for which there can be no adequate recompense under the *Repatriation Act*, have been made by individual doctors, as by individual members of the rest of the community, and it is always open to individual applicants to state 'a special case' for consideration by the Commission.

(*v.*) "The fact remains, however, that members of the medical services have been able during the war to continue the work of their profession—under war conditions it is true—but still to a greater extent probably than members of other professions and occupations.

(*vi.*) "The Commission has no desire to attempt to gauge the relative material losses sustained by individual soldiers, but only endeavours to interpret the wishes of the community as laid down by the *Repatriation Act*.

(*vii.*) "It must be remembered that while great sacrifices were made by very many medical men, no medical man as such was appointed to the Army under the rank and pay of a captain, whilst in other occupations many men in receipt of salaries and earnings of an amount equal at least to a captain's pay, and in many cases considerably more, enlisted as privates, some of whom met their deaths as privates and some of whom returned as privates.

"It is claimed:—

"(1) That returned medical officers, so far from being excluded from the benefits of the *Repatriation Act*, have no distinction made between them and any other class of the community.

"(2) That the Statutory Rules are, for the reasons already given, interpreted as applying to doctors as to others.

"(3) That if Sub-clause C. of Regulation 78 were interpreted as suggested there would be thousands of applicants outside the medical profession having an equal claim to similar treatment, and no such claim could possibly be entertained.

"With reference to the concluding paragraph of the letter from the General Secretary of the Returned Sailors' and Soldiers' Imperial League, it must always be borne in mind that there is a very large body of returned soldiers who have suffered very heavy material losses without any compensation, while others, who have not so lost, have no reward for their services other than the consciousness of having performed their duty.

"The Commission, therefore, can only reiterate the fact that in no case is a medical officer, as such, excluded from the benefits of the *Repatriation Act*, whilst the medical students are accorded some very valuable privileges in regard both to continuing their studies and to financial help during the early portion of their career."

Yours faithfully,
(Signed) D. J. GILBERT,
Comptroller.

Department of Repatriation,
Melbourne,
April 22, 1920.

Books Received.

MALARIA AT HOME AND ABROAD, by S. P. James, M.D., D.P.H.; 1920. London: John Bale, Sons & Danielsson, Ltd.; Crown 4to., pp. 234, with 105 illustrations. Price, 25s. net.

DIATHERMY IN MEDICAL AND SURGICAL PRACTICE, by Claude Saberton, M.D.; 1920. London, New York, Toronto and Melbourne: Cassell & Company, Limited. Sydney: Angus & Robertson, Limited; Crown 8vo., pp. 138, with 33 illustrations. Price, 9s.

COOKERY FOR DYSPEPTICS, by the late Dr. George Herschell; 1920. London: Edward Arnold; Demy 8vo., pp. 56. Price, 2s. 6d.

THE MICROBIOLOGY AND MICROANALYSIS OF FOODS, by Albert Schneider, M.D., Ph.D.; 1920. Philadelphia: B. Blakiston's Son & Co.; Royal 8vo., pp. 262, with 131 illustrations. Price, $3.50 net.

PHARMACEUTICAL BACTERIOLOGY, by Albert Schneider, M.D., Ph.D.; 1920. Philadelphia: P. Blakiston's Son & Co.; Crown 4to., Second edition, revised and enlarged, pp. 441, with 97 illustrations.

Births, Marriages and Deaths.

The charge for inserting advertisements of Births, Marriages and Deaths is 5s., which sum should be forwarded in money orders or stamps with the notice, not later than the first post on Tuesday morning, in order to ensure insertion in the current issue.

BIRTH.

KIRKWOOD.—At "Blairbeth," Oxford Street, Epping, New South Wales, on July 21, 1920, to Dr. and Mrs. W. L. Kirkwood—a son.

Medical Appointments.

Under the provisions of the *Workmen's Compensation Act, 1916*, Dr. H. W. Broadbent has been appointed Certifying Surgeon within the County of Yancowinna, New South Wales.

It is announced that Dr. J. Hardie, M.D. (B.M.A.), has been appointed Honorary Assistant Surgeon to the Out-Patient's Department of the Brisbane General Hospital.

Dr. W. W. Feather (B.M.A.) has been appointed Medical Officer at Roma and Visiting Surgeon to the Roma Police Gaol.

During the absence of Dr. J. Espie Dods (B.M.A.), Dr. A. H. Marks (B.M.A.) has been appointed Acting Medical Officer at Brisbane, Acting Visiting Surgeon to the Dunwich Benevolent Asylum, St. Helena Penal Establishment and Brisbane Prison, and Acting Medical Officer to the Diamantina Orphanage of Brisbane.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser," page xix.

University of Sydney: Chair of Surgery.

University of Sydney: Chair of Physiology.

Medical Appointments.

IMPORTANT NOTICE.

Medical practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429 Strand, London, W.C.

Branch.	APPOINTMENTS.
VICTORIA. (Hon. Sec., Medical Society Hall, East Melbourne.)	All Friendly Society Lodges (other than the Grand United Order of Oddfellows and the Melbourne Tramways Mutual Benefit Society), Institutes, Medical Dispensaries and other Contract Practice. Australian Prudential Association Proprietary, Limited. Mutual National Provident Club. National Provident Association.
QUEENSLAND. (Hon. Sec., B.M.A. Building, Adelaide Street, Brisbane.)	Australian Natives' Association. Brisbane United Friendly Society Institute. Cloncurry Hospital. Stannary Hills Hospital.
SOUTH AUSTRALIA. (Hon. Sec., 3 North Terrace, Adelaide.)	Contract Practice Appointments at Renmark. Contract Practice Appointments in South Australia.
WESTERN AUSTRALIA. (Hon. Sec., 6 Bank of New South Wales Chambers, St. George's Terrace, Perth.)	All Contract Practice Appointments in Western Australia.
NEW SOUTH WALES. (Hon. Sec., 30.-34 Elizabeth Street, Sydney.)	Australian Natives' Association. Balmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham Dispensary. Manchester Unity Oddfellows' Medical Institute, Elizabeth Street, Sydney. Marrickville United Friendly Societies' Dispensary. North Sydney United Friendly Societies. People's Prudential Benefit Society. Phœnix Mutual Provident Society.
NEW ZEALAND: WELLINGTON DIVISION. (Hon. Sec., Wellington.)	Friendly Society Lodges, Wellington, New Zealand.

Diary for the Month.

Aug. 4.—Vic. Branch, B.M.A..
Aug. 9.—N.S.W. Branch, B.M.A., Ethics Committee.
Aug. 10.—Tas. Branch, B.M.A..
Aug. 12.—Vic. Branch, B.M.A., Council.
Aug. 13.—N.S.W. Branch, B.M.A., Clinical.
Aug. 13.—S. Aust. Branch, B.M.A., Council.
Aug. 17.—N.S.W. Branch, B.M.A., Executive and Finance Committee.
Aug. 17.—Illawarra Suburbs Med. Assoc. (N.S.W.).
Aug. 18.—North-Eastern Med. Assoc. (N.S.W.).
Aug. 18.—W. Aust. Branch, B.M.A..
Aug. 19.—Western Suburbs Med. Assoc. (N.S.W.).
Aug. 24.—N.S.W. Branch, B.M.A., Medical Politics Committee; Organization and Science Committee.
Aug 25.—Vic. Branch, B.M.A., Council.
Aug. 26.—S. Aust., B.M.A..
Aug. 27.—N.S.W. Branch, B.M.A..

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